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MAJOR CROP PROGRESS AND WEATHER REPORTING

RETENTION OF QUALITY IN STORED GRAIN

Moscow SEL'SKAYA ZHIZN' in Russian 17 Sep 82 p 2

/Article by L. Trisvyatskiy, professor and doctor of agricultural sciences: "An Optimum Regime"/

/Text/ During these busy harvest days, large quantities of grain having a raised moisture content are being delivered to the country's elevators. What is the best method for achieving normal condition and fully retaining the quality of the grain?

Immediately following threshing, the seed for all crops retains a comparatively high physiological activity, it respires intensively while consuming dry substances in the process -- sugar, starch, fats -- and releasing carbonic acid, water, ethyl alcohol and a large amount of heat. Such consumption during respiration can be considerable and reach 0.1-0.2 percent daily, that is, 1-2 kilograms per ton. Thus importance is attached to lowering the intensity of the grain respiration, with the intensity being directly dependent upon the grain moisture content and temperature, immediately following the harvesting work. Thus the intensity of respiration for wheat and barley grain, for a moisture content of from 11 to 33 percent, increases by a factor of 6,000.

It has been established that this process increases sharply with the appearance of clear water in the grain bulk and thus the moisture content present when clear water appears is referred to as being critical. For wheat, rye, barley, oats, buckwheat and the seed of cereal grasses, this critical level is 14.5-15.5 percent, for corn and millet -- 12.5-13.5, for the seed of peas, beans, vetch and lentils -- 15-16 and for high oil content sunflowers, rape and castor-oil plants -- 6-8 percent. For a moisture content less than critical, the consumption of dry substances is negligible and hence the proper storage of grain for all crops, and especially seed, must be carried out at a moisture content that is lower than critical.

A raised intensity of respiration for freshly harvested grain bulk is also explained by the presence of weed seed and an active status for epiphytic microflora. This is why it is necessary to remove these impurities from the grain bulk immediately.

The surface of each grain contains a large quantity of bacteria, yeast fungus, field moulds and actinomyces. They have all adjusted to existence on a plant, they feed upon its secretions and they do not cause any noticeable damage to the grain. They are dangerous only in terms of the release of heat during respiration.

Another picture is observed after the grain has been separated from the plant (threshing), or during unfavorable conditions or a raised moisture content. At such times, sharp changes take place in the structure of the microflora: "storage moulds" begin to develop on the seed of all crops. They change the color of the grain and penetrate its hull and embryo and at times even its endosperm. Moreover, products of the life activity of the fungus accumulate in the grain, products which possess difficult to eliminate moulds or completely irremovable musty aromas. Such grain is considered to be defective and unsuitable for food or feed purposes. Studies carried out during the past few years have shown that "storage moulds" and fungus of the fusarium type form substances which are toxic to both animals and man -- mycotoxins, which lead to a reduction in the germinative capability of the seed. Moreover, even an increase in the sowing norm does not ensure uniform seedlings or the development of high yields.

During the post-harvest period, the speed with which moulds form on grain is dependent mainly upon its moisture content. Usually the more damp the grain, the faster the funguses develop. Wheat or rye grain having a moisture content of more than 18 percent and sunflower seed having a moisture content of more than 10-12 percent will acquire an irremovable must odor after just several days. As the moisture content of grain approaches the critical level, the mould forming process slows down and a so-called "sluggish mould forming process" takes place. Mould funguses develop very well at temperatures of 40-20 degrees and even lower.

The active development of microorganisms is accompanied by a rapid release of heat in grain bulk and leads to self-warming of the bulk even in piles less than 1 meter in height. Here considerable importance is attached to increased grain respiration during a raised moisture content and also to the seed of weed plants. Even a limited amount of self-warming results in noticeable losses in grain weight and quality and serves as the principal reason for grain spoilage in all regions where it is obtained having a raised moisture content. If the initial temperature in the grain bulk is higher than 15-20 degrees, the self-warming process develops very rapidly and the temperature in the self-warming centers reaches 35-40 degrees over a period of several days and the losses in dry substances increases many times over. Thus decisive measures must be undertaken to ensure that all impurities are removed from the grain and that it is dried in a timely manner.

However, quite often the sequence with which the grain is passed through the machines, the incorrect selection of screens and poor separation by means of air without taking into account the nature of the impurities or the size of the principal grain produce low results. The repeated passing of the grain bulk through the cleaning units, using the same operational regime, is also of little effect. This only leads to unproductive expenditures and losses as a result of the grain being subjected to additional damage. Quite often the cleaning work deteriorates sharply when insufficient control is exercised over the condition of the screens.

The high cost of drying work carried out in different types of dryers and the low technological effect, that is, the low reduction in grain moisture content on some farms, are the results of violations of the drying regimes. Only by raising the warming temperature for the grain to the established limits for the drying chamber will it be possible to achieve the maximum results. All of these parameters were thoroughly studied and reported upon in the recommendations for drying bread grain and seed stock, in conformity with the types of grain dryers, the grain and seed varieties and their initial moisture content.

During the past few years, the drying of grain at kolkhozes and sovkhozes has often been carried out using forced ventilation of air heated to 20-40 degrees. It is especially useful for seed since it precludes their becoming overheated. The experience of many farms in the nonchernozem zone of the RSFSR and in the Baltic and Urals regions underscores the advisability of employing this method.

One cause of the considerable grain losses occurring during storage in the southern and central regions of the country is the development of such pests as insects and mites. The most important of these -- granary and rice weevils, butterfly and confused flour beetles, meal beetles, lesser grain borer, grain moth and some others that are capable of propagating at a wheat grain moisture content of 11-12 percent, that is, lower than the critical value, and to lower considerably both the weight and quality of the grain. For the purpose of protecting the freshly harvested grain against contamination by pests, timely inspections should be carried out of the threshing floors, packaging materials, implements, transporting equipment and grain storehouses, they should be thoroughly cleaned and, when necessary, disinfection work should be carried out.

Grain bulk, the microbes in it and insects and mites are very sensitive to temperature. Thus, when the temperature is plus 10 degrees or lower, the intensity of respiration for damp grain falls sharply, the vital activities of mould funguses slow down greatly and insects lose their ability to propagate, they cease eating and their cycle of development slows down to an extreme or comes to a complete halt. All of this reduces sharply the formation of heat and practically eliminates self-warming. Further cooling promotes even greater conservation of the grain. However, grain can be cooled rapidly on the threshing floor or in a warehouse only through the use of active methods. Naturally, its cooling from the surface -- by means of a lower temperature for the surrounding air -- takes place very slowly owing to the poor heat conductivity of grain bulk and it can be cooled rapidly by means of forced ventilation at threshing floor or warehouse sites equipped with special units.

The regime for storing grain in a cooled state is effective for all zones of the country. In the central, northern and eastern regions, it can be subjected to cooling and stored until spring immediately following its harvesting and the required processing.

The farms should be cautioned against employing such a laborious method for cooling the grain as scooping. Both on the threshing floor and in the storehouses, the latter method does not produce the proper technological effect owing to the poor heat conductivity of the grain, which when this method is employed does not cool to the required temperature. An infrequently observed partial reduction in temperature quickly passes, since as a result of aeration the intensity of respiration of the grain and mould funguses increases sharply and this leads to a new flare-up of self-warming. Cooling on a threshing floor or at storehouses must be carried out using only forced ventilation of the grain or moving it with the aid of a series of conveyers and also grain cleaning machines with blowers.

Special attention should be given to the carry-over funds for winter wheat and winter rye, the storage period for which encompasses two summer periods. A gradual reduction in the germinative capacity of this seed is directly dependent upon the moisture content at which it was stored. Thus it must be dried immediately to 12-14 percent. The cleaned, dried out and cooled seed of carry-over funds should be stored in good dry storehouses and in piles up to 3 meters in height. Such storehouses should ideally be equipped with units for forced ventilation.

It must be remembered that the seed from carry-over funds furnish yields which are 10-15 percent higher than that obtained from freshly harvested seed. For example, according to experimental data accumulated over a period of 3 years, such seed furnishes an increase in yield of 5.3 quintals per hectare and this compensates for all of the additional storage expenses.

In the northern and eastern regions of the country, the difference between the laboratory and sowing germinative capacities of the seed is very great. Why? Among them there are large quantities of seed that suffered damage during harvesting work. Thus, when threshing the seed tracts, one should ensure that the working organs of the combines have been properly adjusted. The moisture content of the seed is of considerable importance with regard to the degree of injuries sustained during the harvest work. The least amount of damage during harvest operations occurs when the moisture content of the seed is 14-20 percent.

For the purpose of normal storage, each farm must have appropriate storehouses at its disposal. New mechanized storehouses are presently being erected on many farms. These facilities have storage capacities for hundreds and thousands of tons, they have asphalt or asphalt-concrete floors, they provide fine protection for the grain against outside influences, rodents and so forth. The skilful use of these facilities has shown that they serve the intended purpose for the most part and that they are capable of storing grain and seed with minimal losses. Well prepared batches of bread and forage grain can be stored in them in heaps ranging in height up to 3-5 meters.

Thus science and practical operations have a rich arsenal of means at their disposal for achieving high results in the preservation of all crops grown. The task is one of ensuring that all of these resources are utilized on an extensive scale.

7026
CSO: 1824/8

MAJOR CROP PROGRESS AND WEATHER REPORTING

IMPROVEMENTS IN SUNFLOWER HARVESTING TECHNOLOGY REVIEWED

Moscow SEL'SKAYA ZHIZN' in Russian 14 Sep 82 p 1

/Article: "More Oil-Bearing Seed for the Country"/

/Text/ Our homeland is the largest producer of sunflowers in the world. This year more than 4.2 million hectares have been set aside for this crop and the plants are ripening in a fine manner in almost all areas. The crop has developed well mainly owing to the increasing level of agricultural techniques, the proper tending of the plants and the introduction into operations of the experience of leading collectives. A fine contribution has been made by those scientists who have developed a number of new varieties and hybrids -- high oil-producing, disease resistant and suitable for industrial cultivation technologies. In short, a practical step has been taken towards solving the tasks of the food progam -- raising the average annual production of sunflower seed during the 11th Five-Year Plan to 6.7 and during the 12th to 7.2-7.5 million tons.

The farmers in Moldavia, the north Caucasus and the southern Ukraine have commenced harvesting their sunflowers. Hot weather has prevailed here recently and this has lowered the moisture content of the heads. And the machine operators are not wasting time in vain. For example, during the daylight period the combine operators in Prokhladnenskiy Rayon in the Kabardino-Balkar ASSR are obtaining 80-90 hectares of sunflowers. Without delay, the seed is being cleansed on the threshing floors and sold to the state. This serves to guarantee that high quality oil will be obtained from it. The plans call for only good quality raw materials to be delivered this year to the food industry from the sunflower fields of farms in Odessa Oblast. Based upon initiative displayed in Saratskiy Rayon, the farms in Ovidiopol'skiy and Belgorod-Dnestrovskiy Rayons have joined in the competition to obtain 1 ton of oil per hectare. Moreover, this movement is based upon businesslike collaboration with the collectives of the oil plants. Only a few days have been set aside for the threshing of the seed.

An important task of those farms engaged in producing sunflowers and also of their partners in the agroindustrial complex is that of harvesting this valuable crop in a timely manner and ensuring complete preservation of the crop. Actually, a lowered temperature regime and the return of cold weather and precipitation during the summer period promoted the formation of vigorous plant bulk, with the sowings becoming contaminated by various types of rot in a number of areas. This necessarily alarmed the leaders of the agricultural organs, kolkhozes and sovkhozes and also the procurement specialists. A requirement exists for thorough preparations for cutting down the sunflowers and, immediately following the threshing, to process them to the established moisture conditions. The work must not be allowed to drag out for 30-40 days, as has often happened in the past, with the end result being the use of the oil-bearing seed for the production of technical products.

A deviation from the optimum harvesting periods is one of the chief reasons for a reduction in the cropping power of sunflowers in the central chernozem zone and the Volga region. Here it is timed to coincide with the completion of the principal field operations, the availability of transport vehicles and the capabilities of the drying equipment at the elevators. These are special problems and they require not operational but rather permanent solutions in the various areas and by the higher organs of planning and supply. But a great amount of work must also be carried out by the farmers themselves. Here we have in mind first of all the timely desiccation of the crops -- treating them with chemical preparations which promote the drying out of the plants while standing and prevent the spread of moulds.

This year the agricultural method will be of decisive importance; it will make it possible to carry out the harvest work right up until the period of inclement autumn weather and to ship a considerable portion of the seed to the elevators and oil plants without preliminary drying. This is why the leading collectives are relying heavily upon the use of this method. The Kolkhoz imeni Ul'yanov in Pologovskiy Rayon in Zaporozhye Oblast, owing to treatment of the plantations with chemical preparations, was able to commence its oil seed harvest earlier than even the oblast's southernmost farms. And although the kolkhozes and sovkhozes are better supplied with dryers than other areas, the farmers are actively carrying out the desiccation of the crops.

Unfortunately, in other regions of the country, especially in the central zone of the Russian Federation, by no means have all of the farms as yet concluded desiccation agreements with aviation enterprises. The situation must be corrected immediately, especially in view of the fact that ample quantities of the required chemical preparations are available. To shorten the sunflower harvesting periods -- is to protect the crop against losses and raise the quality of the oil-bearing seed. At the Kolkhoz imeni Lenin in Zernogradskiy Rayon in Rostov Oblast and at the Kolkhoz Rassvet in Valuyskiy Rayon in Belgorod Oblast, during all types of weather conditions, the heads are threshed in just 5-6 days and, as a result, high yields of oil-bearing seed are ensured. Such farms are to be found in each zone and their experience must be made available to all farms.

On the eve of the mass harvesting work out on the plantations, importance is attached to carefully adjusting the combines so as to prevent losses and crushing of the oil-bearing seed. Industry has fully mastered the task of producing the PSP-1.5 attachments, which meet the agrotechnical requirements. However, a number of oblasts did not find the time required for ordering them and thus were forced to use the obsolete 34-103A attachments, which result in considerable crop losses.

Successful harvest operations will be promoted by double shift work by the machine operators and by the use of progressive forms for organizing their labor and wages. Importance is also attached to utilizing large groupings of equipment, similar to the method employed for cutting down grain crops. The experience of farms in Leningrad and Timashevskiy Rayons in Krasnodar Kray, in Peschano-kopskiy

Rayon in Rostov Oblast and many others reveals that when use if made of the Ipatovo method for organizing labor and also the PSP-1.5 attachments, each harvesting unit is capable of threshing from 18 to 20 hectares of sunflowers daily.

All available drying equipment must be employed at maximum capability at each kolkhoz and sovkhoz. If this is not done, the local soviet and economic organs are obligated to ensure the continuous procurements of damp sunflowers and their drying out at elevators and receiving points. Special importance is attached to organizing the timely processing of the crop at specialized farms which grow early-ripening varieties and hybrids of sunflowers for seed purposes.

A great amount of urgent work remains to be carried out on the autumn fields. And the farmers must constantly focus attention on one very important crop -- sunflowers. The better the sunflower harvest -- the more food oil will become available to the country and the more we will be supplied with the products required.

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SUGAR BEET HARVEST EQUIPMENT PROBLEMS, CENTRAL CHERNOZEM ZONE

Moscow SEL'SKAYA ZHIZN' in Russian 1 Sep 82 pp 1-2

/Article by A. Trubnikov (Central Chernozem Zone): "Weak Links of the Sugar Conveyor"/

> /Excerpts/ The season of mass sugar beet harvesting is approaching. This crop annually occupies more than 800,000 hectares in the central chernozem oblasts--half of the sugar beet fields of the Russian Federation. They produce almost half of the sugar in the republic. What are the current concerns of the sugar beet growers and the sugar processors of the zone, what bothers them and what must they do to reduce losses of raw material and sugar to a minimum--this is what our correspondent's letter is about.

Almost all oblasts in the zone have prepared more sugar beet harvesting equipment than they did last year. But there are still many machines that have not been repaired. In Oktyabr'skiy Rayon in Kursk Oblast, for example, they have not reapired one-fourth of the sugar beet harvesting machines that came from the Khomutovka specialized shop of Sel'khoztekhnika. Some of them needed to be reapired again.

Regardless of which sugar beet growers one had occasion to speak with, they all unanimously complained about the poor reliability and shortage of machines for harvesting the tops. For normal operation they require 1.5-2 times as many of them as combines. But so far they only receive 1 BM-6 for each KS-6 and RKS-6 combine. While making justified complaints against the machine builders, the rural workers are taking measures to increase the rates and improve the quality of the harvesting of tops and tubers even under the current conditions.

"Last year," says the Deputy Chief of the Agricultural Administration of the Voronezh Oblispolkom, V. I. Gozhin, "the oblast Sel'khoztekhnika, with the help of industrial enterprises, manufactured about a thousand 2-shaft cleaners. Their working parts, which rotate in opposite directions, clean the tubers well, remove the weeds and make it possible for the combines to produce beets that are suitable for release without completing the cleaning by hand. This year there are twice as many of these implements. The skillful workers of Kamenskiy Rayon came up with a laudable initiative. They manufactured cleaners by using the reducers and cutting parts of KST-ZA combines. The tubers are cleaned by cables that are attached to disks."

On a number of Belgorodskiy farms the top harvesting machines have been strengthened by additional drums and working parts. The oblast intends to prepare 1,500 strengthened "brushes." One cannot but welcome the intention of many Kursk sugar beet growers to use ordinary "brushes" separately from the BM-6. When it is used after the cutting of the tops in the opposite direction of the top harvesting machines the quality of the cleaning of the tubers improves.

In past years the kolkhozes and sovkhozes of Belgorod and Kurst oblasts have frequently had occasion to see the difficulty with which the top harvesting machine moves over weedy fields. The weeds obstructed the working parts of the machine, slowed it down, and made it difficult to have uniform cutting of the sugar beet tops and cleaning the residuals from the heads of the tubers. The work of the combines was also impeded and the weediness of the raw material that went to the plant sometimes reached 20 percent and more. The excessive quantity of attached tops caused an especially large amount of harm. Modern technology for processing sugar beets provides for a normal process of sugar refining only if the proportion of these tops does not exceed 3 percent of the weight of the tubers. Otherwise losses of sugar increase sharply. Unfortunately, the farms rrequently forget about this requirement.

Therefore the sugar beet growers of Belgorodskiy, Korenevskiy, Talovskiy and other rayons of the zone are correct when they take additional measures to clear the weeds from the fields. In addition to mechanized loosening, thousands of agricultural workers have gone out onto the fields with choppers. City dwellers have come to help them. Many farms are preparing trailer mowers and KIR-1.5 machines for mowing the weeds and high-growing tops before harvesting.

With the exception of Belgorod workers, everyone is experiencing a critical shortage of modern SPS-4.2 sugar beet loaders. In Kursk Oblast, for example, there is only one of them for every 4-5 farms. Unfortunately, in many places they write off old loaders. In Lipetsk and Tambov oblasts, for example, last year almost half of them were not operating. They blamed the unreliability of SNT-2.1 sugar beet loaders and their inability to place the tubers in large trucks. We mentioned above how successfully the problem of utilizing old equipment was solved on the Kolkhoz imeni Vinichenko. On other farms they are lengthening the SNT-2.1 and strengthening the existing loading transporters as well as reinforcing individual components. KS-6 combines which have been written off can be a great help if they are re-equiped. In a word, there are many possibilities of mechanizing loading. So far they are being poorly utilized. In Kursk Oblast, for example, they have delayed the re-equiping of 70 combines. Similar signals are coming in from other oblasts.

Yet the low level of mechanization of loading sharply reduces the productivity of automotive transporation. Because of this, and also because of the late arrival of trucks from other regions to the fields of Voronezh Oblast, from year to year they accumulate up to 600,000 tons of unshipped tubers, Lipetsk Oblast--up to 500,000 tons, Tambov Oblast--up to 400,000 tons and so forth. And this leads to large losses of sugar because of the wilting of the sugar beets when they are stored for a long time in small heaps.

True, there is a reliable means of preventing these losses--storing the tubers on the edges of the fields in clamps. It would seem that it is time for sugar beet growers to stop talking about using clamps and start using them in practice. After all, the sugar industry provides material incentives for this important work.

Last year I had occasion to observe the work of centralized automotive detachments on the farms of Belgorod Oblast. Such a detachment or part of one arrives on an hourly schedule at the sugar beet fields, loads the clamp of tubers with its own loader and, without any delay, takes them to the sugar beet receiving point.

"This year we will have no less than 50 of these complex detachments," says the Chief of the Oblast Transportation Administration, A. A. Mozgovoy. "All the large trucks and truck convoys that are not included in comprehensive subdivisions are also formed into detachments, regardless of their departmental jurisdiction. The administrative centers located at the sugar refineries or directly under rayon operations staff will be in charge of them."

It is intended to use the system of centralized shipping in all oblasts of the zone this year. But this desire has still not been backed up with practical actions everywhere. The level of technical readiness of the trucks is not high, organizational problems are being solved slowly, many approach roads, bridges and other roads are not in order, and it has not been decided who will use what to form the clamps of sugar beets on the edges of the fields. Many plants do not have enough truck scales and unloaders for large trucks, especially for the KamZA-5410.

It would be difficult to overestimate the importance of solving the transportation problem. It becomes more difficult to ship a large volume of sugar beet raw material because of the fact that in September, when the sugar beets are being chopped, the farmers are usually continuing the harvesting of corn, the storing up of silage, and the procurement of potatoes, vegetables and fruits. Taking measures for highly efficient utilization of each transporation unit, the sugar beet growers hope that, as distinct from past years, this year the trucks will arrive promptly from other oblasts.

What Is The Final Result?

"Workers of our branch are doing a great deal to shorten the season for processing sugar beets to 100-105 days, a task envisioned by the Food Program," says the General Director of the Belgorod Production Association of the sugar industry, K. M. Vereshchak. "This is an important means of avoiding losses. Last year the output of sugar in the association had decreased by 3.07 percent at the end of the season as compared to the beginning. This is why we attach primary importance to increasing the capacities of our enterprises through reconstruction. During the past five years they have increased by 10 percent and they will increase again this year."

The same process can be observed in other oblasts of the zone, and the new Zolotukhino plant is going into operation in Kursk Oblast.

But to increase the capacities to the optimum is a lengthy process which requires many years, and today it is very important to utilize everything there is as fully as possible. There are more than enough reserves.

According to data of the Rossakharprom association the total average annual idle time of the plants of the zone under the 10th Five-Year Plan amounted to 973 plant-days. Taking into account the actual duration of sugar refining, this is tantamount to halting the operation of 9 of the existing 48 plants! The situation did not improve much in 1981 either.

A large amount of the idle time was the result of the lack of sugar beets, which again emphasizes the importance of rythmic and prompt delivery of them for processing. Usually the sugar refining season begins earlier than mass chopping of the beets. In the schedule for the delivery of raw materials to the plants within their day requirementis not fulfilled during this time. This causes a large amount of harm to the state and those who violate the schedule, as a rule, are not punished in any way. It seems that this situation should be rectified this year.

This year, according to data of oblast associations, the repair work on the plants is preceding on schedule in almost all of the oblasts and in some places they are ahead of schedule. But there is still a great deal to do.

Thus in Kursk Oblast at the Deryuginskiy plant work was delayed on the section of land sumps, pulp pits and towers, the preparation of clamp fields and the preparation of equipment for unloading sugar beets. The reapir of technological equipment leaves something to be desired. This can also be said of the L'govskiy and Kommunar plants. The rates and quality of the preparation are not on the proper level at the Valuyskiy plant in Belgorod Oblast, the Kalacheyevskiy plant in Voronezh Oblast, the Uvarovskiy plant in Tambov Oblast and others.

There are so many difficulties when there is a shortage of paved areas and strips on the clamp fields, especially during bad weather! The wheels of the machines spin and it is more difficult to form the clamps. In the conditions for storing the tubers are so much worse when they are left out in the open! So far there are not enough of these areas or design for them, and the plans for constructing them are not fulfilled from year to year. Thus last year the plan was fulfilled by 65 percent in Tambov Oblast, 88 percent in Kursk Oblast and 94 percent in Voronezh Oblast. Even now there is no appreciable improvement in evidence. The managers of many plants and associations do not display the proper initiative and enterprisingness. But one cannot but agree with the complaints against Rossakharprom of the RSFSR Ministry of the Food Industry: the plans for paving clamp fields are backed up with only half of the necessary gravel and cement. Moreover, these supplies are not always provided on time. Thus the Rostovnerud association is holding up the delivery of gravel in Kursk Oblast.

Active ventillation is being introduced slowly, especially in Voronezh Oblast where the largest areas of sugar beet fields in the zone are located. Here the length of the air lines is much less than in Belgorod Oblast, and even there the level that has been achieved in inadequate. It is time to devote attention to the qualitative aspect of the matter as well: many systems are not very effective since they do not have devices for humidification of the air and remote control of the temperature in the clamps, and this can lead to drying of the tubers.

"Three years of experiments at the Olymskiy plant proved the high effectiveness of treating the sugar beets with sodium hydrazide maleate," says the director of the Kursk branch of the All-Union Scientific Research Institute of the Sugar Industry, V. A. Chubukin. "It impedes the sprouting and respiration of the roots, and reduces the average daily losses of sugar during storage by 15-20 percent as compared to the normative. This year agreements have been concluded for using this preparation on 300,000 tons of sugar beets in Kursk Oblast and 150,000 in Belgorod Oblast. Other oblasts are capable of introducing the innovation--any plant is capable of manufacturing sprinkling devices for the clamp forming machines."

It is also very important to promptly plow and carefully level the clamp fields and to improve old areas by paving them.

These days all plants are re-equiping the series produced BUM star-shaped cleaners for more active operation, which doubles the effect of cleaning. In order to remove the sugar beet mass from the waste (crushed material, waste and rubble) for subsequent processing into sugar, and industrial enterprises of the oblast are manufacturing special installations of the OSO type. Devices for removing wastes are installed on the BUM instead of the cleaning component. There will now be sixteen of these installations, and ventilators for blowing away impurities and airing the heaps will be installed on 75 of the 162 clamp forming machines. Additional devices for removing tops, straw and stones are being installed at the majority of the plants.

The initiative of the Belgorod workers deserves all kinds of support, including some Rossakharprom. Incidentally, many managers of oblast associations and plants are making serious complaints against it and against the Main Administration of the Sugar Industry of the USSR Ministry of the Food Industry.concerning inadequate assistance in the introduction of the achievements of science and those of the leading enterprises of the branch.

"Can it really be considered normal when it is necessary to manufacture various fittings under primitive conditions and re-equip individual mechanisms?" asks General Director of the Tombov association, D. F. Yefanov. "It would be much more reliable and less expensive if this were done centrally at specialized enterprises."

We might also ask why the Ministry of Machine Building for Light and the Food Industry and Household Appliances does not arrange the output of clamp forming machines with devices for cleaning the tubers of impurities and treating them with chemical preparations?

Sugar refiners are also concerned about how to reduce losses when processing sugar beets. They are especially bothered by the increased norms for the content of sugar in molasses (treacle).

"A reliable path to avoiding these losses is precise observance of technological discipline, and an efficient production rhythm," thinks the Director of the plant imeni V. I. Lenin in Belgorod Oblast, G. I. Shcherbakov.

By meeting this requirement the plant's collective has reduced the content of sugar in the molasses to 1.99 percent instead of the 2 percent indicated in the plan. If all plants of the oblast had achieved these indicators, last year it would have been possible to obtain more than 15,000 additional tons of sugar.

The figures regarding the losses are equally impressive in other central chernozem oblasts. Are they not a result of the fact that planning norms for the content of sugar in molasses are being established on the basis of the achieved level and not on the basis of the possibilities? It is surprising but true that for the plant imeni Lenin this norm for this year is 2 percent, and for the Alekseyevskiy, Chernyayskiy plants--it is 1.5 percent more. It is clear that this kind of planning does not contribute much to strengthening technological discipline . . .

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AGRO-ECONOMICS AND ORGANIZATION

INCENTIVE PAY FOR QUALITY WORK IN COTTON INDUSTRY

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/Article by Ch. Ruzmatov and S. Muradov: "Improvements in Incentives for Quality of Work and Products in Livestock Production"/

/Text/ In the system of economic levers employed for promoting improvements in the efficiency of public production and in the quality of products, an important place is occupied by the rational organization of material incentives for workers attached to socialist enterprises for having improved the quality of their work and the products produced. Actually, the final results of labor in agriculture, especially in field crop husbandry, are greatly dependent upon the timely and proper execution of the agrotechnical methods employed in the cultivation and harvesting of agricultural crops. In this regard, a need has developed for obtaining more efficient systems for organizing material incentives for workers.

The 26th CPSU Congress called for the average annual production of raw cotton for the country on the whole to be raised to 9.2-9.3 million tons during the current five-year plan, including for the UzSSR -- to 6 million tons. "But the problem at the present time is not simply one of quantitative indicators of growth" stated L.I. Brezhnev, "the principal task is that of raising the quality of the products and achieving a maximum increase in the production of fine-fibred varieties of cotton. A chief concern of all of the country's cotton growers -- high quality cotton." (On Further Development of USSR Agriculture. Report delivered before the Plenum of the CPSU Central Committee on 3 July 1978, Moscow, 1978, p 25).

Over the past few years, a considerable amount of positive experience has been accumulated at a number of cotton growing farms in the republic in connection with evaluating and taking into account the quality of work and also in organizing material incentives for workers for improved quality in their work. The experience accumulated at a number of cotton growing facilities is deserving of attention: the sovkhozes Akkurgan in Akkurganskiy Rayon in Tashkent Oblast, Savay in Kurgantepinskiy Rayon in Andizhan Oblast, Bayaut in Bayautskiy Rayon in Syr-dar'ya Oblast and imeni Lenin in Leninyul'skiy Rayon in Surkhan-darya Oblast, the Kommunizm Kolkhoz in Bayautskiy Rayon in Syr-dar'ya Oblast and other farms throughout the republic. Thus a 10-point system for evaluating the quality of work in field crop husbandry is being employed at the Savay Sovkhoz in Kurgantepinskiy Rayon in Andizhan Oblast. Here the farm specialists have developed the agrotechnical requirements for each type of work and a point system for evaluating them. Towards this end a "coupon of quality has been introduced at the sovkhoz upon which entries are made concerning the carrying out of work, with the many agrotechnical indicators being taken into account.

The plans call for the following grades to be assigned: "outstanding" when 10-9 points are earned for one work operation, 8-7 points -- "good," 6-5 points -- "satisfactory." A lower evaluation is viewed as sub-quality work. For excellent quality work a tractor-machinist or driver-mechanic is awarded a bonus of 50 percent of his wage rate, for good quality work -- 25 percent and for satisfactory quality work he receives his wage rate. No payment is made for sub-quality work.

Commencing in 1976, a 5-point system for evaluating the quality of work in field crop husbandry was introduced at the Kommunizm Kolkhoz in Bayautskiy Rayon in Syr-dar'ya Oblast. A special record -- "Certificate of quality" -- is maintained here for each cotton growing brigade. Following an inspection of the wo by a special committee, the work is evaluated and the results entered in the "Certificate of quality." At the end of the year the point average is determined and thereafter an additional payment is made for the products produced. If the average annual number of points for a brigade is 5, that is, "excellent," then the collective receives the full amount of the additional payment. If 4 points are assigned for the work, the amount of the additional payment is reduced by 10 percent and if an unsatisfactory evaluation is assigned then the additional payment is lowered by 25 percent.

In view of the importance attached to carrying out the raw cotton harvest as rapidly as possible, in a high quality manner and without losses, the farms, for a period of 30 days during the most tense period of the harvest, pay their tractor-machinists at rates raised by 30 percent. In the case of manual harvesting work, a raised payment (of 15 percent) is made for a period of 45 days.

In addition to a raised payment for harvesting the raw cotton, the machine operators have an additional 10 percent added on to their principal wage upon the condition that the amount of cotton collected from the bushes and picked up from the ground following the machine operations does not exceed (in quality-standardized weight) 15 percent of the actual cropping power of the cotton. If the amount of cotton left following the operation of the machines does not exceed 10 percent of the actual cropping power of the cotton on the machine harvesting tracts, the additional payment is raised to 15 percent of the actual wages of the tractor-machinists. A centralized increase in wages should ideally be introduced for the quality of preparation of the land for sowing and for obtaining healthy cotton seedlings and the required plant density.

In regulating the organization of additional payments and bonuses for workers for the quality of their work, importance is attached to defining correctly the signs to be used for evaluating the quality of the work. Hence, work quality standards must be developed which take into account all of the agrotechnical and organizational-economic requirements for the particular type of work involved.

In the interest of regulating the issuing of incentives to workers, special statutes are prepared annually, at the beginning of each year, at the Akkurgan Sovkhoz in Akkurganskiy Rayon in Tashkent Oblast. For example, in the statute on organizing the payment of incentives from the wage fund, mention is made of those branches where an additional payment is being made; a list of operations and the schedules and length of time for carrying them out is provided, the categories of workers eligible for such incentives are defined and the size of the incentives and their maximum amounts are set forth. At this farm consideration is given to the straightness of the plantings and to proper observance of their required density. The germination is 100 percent, the plant density per hectare is 125,000-130,000 and the moisture content of the soil is uniform. The total amount of material incentives to be employed at the sovkhoz for field crop husbandry is determined in advance, with an indication being provided as to the types of work and the categories of workers for which the payments are to be made. The requirement for funds for organizing an intra-sovkhoz socialist competition is determined using roughly the same principle.

If we take the entire material incentives fund and distribute it according to work periods and incentive forms, then the following picture is obtained: 16.2 percent is allocated for the pre-sowing period of work, including 2.3 percent for the competition and 25.6 percent for issuing bonuses for quality of work and for the growing season the figures are respectively 5.6; 9.7 and 2 8 percent and harvesting of the crops -- 74.8; 88 and 66 percent. For the sowing campaign, only 3.4 percent is allocated for the issuing of current bonuses, of which amount 5.6 percent is expended for organizing the competition.

Considerable funds for issuing bonuses to workers for the timely and high quality carrying out of especially important work during the pre-sowing period are allocated for autumn plowing, for cleaning the intra-farm irrigation systems, for repairing and preparing equipment for the sowing campaign and others. The issuing of incentives for the quality of work during the sowing and growing periods is carried out using mainly the wage fund. For the quality of the inter-row cultivation of cotton, harvesting the raw cotton and the 1st autumn plowing, stimulation is provided at the sovkhoz using the wage fund and material incentives. At times this leads to the issuing of repeated incentives for the same type of work. In order to prevent this from happening and also in the interest of raising the efficiency of use of the incentive funds, the bonuses for quality work in agriculture should ideally be issued from the same source -- the material incentive fund. Those farms which have achieved a more stable and highly efficient level of production should first of all be converted over to this system.

At the present time, the accounting for and evaluation of quality in field crop husbandry are being carried out by special committees responsible for quality. Their structure includes leading farm specialists, innovators, leading production workers and representatives of public organizations of a production collective. Moreover, the chief shortcoming of the work being performed by the committees lies in the fact that they determine the quality of work mainly after it has been carried out. Meanwhile, these committees must exert an influence on the workers directly while they are in the process of performing the work. For this purpose, permanently active functional services should be created at each farm for evaluating and taking into account the quality of the work and output in agriculture.

Analysis reveals that the amounts of the incentives issued for the quality of work in field crop husbandry have been raised somewhat during the past few years at a number of sovkhozes throughout the republic. Thus, in 1980, at the Akkurgan Sovkhoz, the proportion of the incentives paid out to workers for the quality of work in field crop husbandry amounted on the whole to 11 percent of all of the wages, including by means of the material incentive fund -- 3 percent and the wage fund -- 8 percent. A higher proportion of these incentives is being issued to machine operators (10.2 and 6.1 percent respectively), and this corresponds fully to the role they play in raising the efficiency of public production. Experience has shown that growth in the material incentive fund for the quality of work in field crop husbandry is promoting an improvement in the production-financial indicators. Thus, as a result of employing stimuli and other measures, the cropping power of cotton at the sovkhoz during the years of the 10th Five-Year Plan and compared to the average annual cropping power during the 9th Five-Year Plan increased an average of 3 quintals per hectare and reached 34 quintals per hectare. During this same period, the profitability level in cotton production increased by 4.8 percent and amounted to 43.8 percent.

Notwithstanding a certain positive effect generated by incentives on the quality of work and on raising production efficiency, their level still remains low. Thus, according to data furnished in the annual reports of sovkhozes of the UzSSR MSKh /Ministry of Agriculture/, the proportion of additional payments for the quality of work in field crop husbandry (by means of the wage fund) in 1980 amounted to 1.27 percent of the entire wage fund and for kolkhozes -- in all only 0.31 percent. This is explained by the absence of methods, the use of which could have standardized the issuing of incentives for the production of goods and work quality. In our opinion, more extensive use should be made of the experience of those farms which employ a satisfactory evaluation as the basic level for work quality.

An additional payment should ideally be introduced for improving the satisfactory level of work quality. It is considered advisable to introduce into operational practice in all areas a 5-point system for evaluating the quality of work. In the process, work assigned an evaluation of "1" should be considered as complete waste. This should suffice for depriving the individual who performed the work of the wage rate due him. An evaluation of "2" is viewed as being partial waste and for such work only two thirds of the wage rate is paid. The tariff rate is paid for a satisfactory (3) evaluation. In the case of a good evaluation the tariff or wage rate is increased by 15 percent and, finally, if an evaluation of "5" is assigned for work quality (outstanding), the wage rate is increased by 25 percent.

For stimulating the quality of agricultural output, use is made of the job contract plus bonus wage system (when organizing accounting for output quality) and various types of bonuses are established (using material incentive funds, wage fund, deductions from the total amount of bonuses added on to the procurement prices for improved quality in the products). In addition, the cotton growing farms are authorized to use up to 50 percent of the bonuses obtained for a reduction in the weediness of raw cotton procured from machine harvesting for awarding bonuses directly to workers engaged in the machine harvesting of cotton and who are supplying the state with high quality raw cotton. This is having a positive effect on growth in farm income as a result of improvements being realized in the quality of the raw cotton. Data for the Akkurgan Sovkhoz, as furnished in the Table on the following page, serves as convincing proof of this.

Hence the proportion of raw cotton sold to the state having a lowered weediness has a tendency to increase. During some years it ranged from 70 to 97 percent and this ensured a considerable increase in the income of farms and in the award amounts computed for workers for having lowered the weediness of machine harvested raw cotton. The experience accumulated and the data cited in the Table reveal that the issuing of incentives plays a positive role. At the same time, the experience of some of the republic's farms underscores the need for further improving the

Dynamics of Growth in Income and Bonuses From the Sale of High Quality Raw Cotton at the Akkurgan Sovkhoz in Akkurganskiy Rayon in Tashkent Oblast

	1971	1975	1979	1980
Raw cotton sold to the state -- total, in tons	6948	10040	11727	12510
Including with lowered weediness, in tons	1413	3063	3684	8533
Earnings from the sale of raw cotton, in thousands of rubles	3171.6	4597.2	5381.4	6121.6
Of which, additional income from lowered weediness	13.1	30.2	36.3	84.0
Bonuses paid for quality of products, in thousands of rubles	6.5	15.1	18.1	42.0
Proportion of additional earnings in value for overall output, in %	0.41	0.66	0.67	1.37
Proportion of raw cotton sold having lowered weediness, in %	20.3	30.5	31.4	68.2

conditions under which use is made of the incentive funds obtained from procurement organizations for a reduction in the weediness of machine-harvested raw cotton.

At the Sovkhoz imeni V.I. Lenin in Uchkurganskiy Rayon in Namangan Oblast, the funds for issuing awards, formed on the basis of additional funds obtained from the procurement organizations for supplying the state with raw cotton having a lowered level of weediness, are distributed in the following manner (% of the total amount allocated for awarding bonuses): for the drivers of cotton harvesting machines -- 50; for tractor operators engaged in loading, transporting and delivering cotton to the state -- 15; for workers for the removal of weeds prior to machine harvesting -- 4; for workers for carrying out the defoliation of the cotton plants -- 5; for workers for preparing the turn-around strips for the cotton harvesting machines -- 4; for mechanics, master-trouble shooters and other workers for carrying out repair work on the cotton harvesting machines -- 15; for agronomists, mechanical engineers and department managers -- 5.

A number of farms are tolerating low estimates with regard to determining the specific amounts of incentives for the drivers of cotton harvesting machines for having lowered the weediness in the raw cotton harvested by them. For example, at the Bayaut Sovkhoz in Bayautskiy Rayon in Syr-dar'ya Oblast the additional payment for each ton of raw cotton of lowered weediness is defined as follows: for machine operators who operate cotton harvesting machines of the "17 X B - 1.8" type: for picking I -- 4 rubles and 37 kopecks and for picking II -- 3 rubles and 88 kopecks. For machine operators who operate cotton harvesting machines of the "XN - 3.6" type: for picking I -- 3 rubles and 85 kopecks and for picking II -- 4 rubles and 37 kopecks.

Actually, a reduction in weediness in raw cotton will depend to a considerable degree upon the quality of the work performed by the drivers of the cotton harvesting machines. Thus the size of the bonuses for them must be established directly per ton of raw cotton depending upon its degree of weediness. In accordance with the conditions, the fund for the awarding of bonuses for lowered weediness in raw cotton is formed according to the following two norms: 15 rubles per ton -- for a weediness of up to 5 percent; 10 rubles per ton -- for a weediness of from 5.1 to 12 percent. If it is established, for example, that 50 percent of the total amount of bonuses for lowered weediness in cotton is to be issued to the workers and of this amount 50 percent is to be given to the drivers of the cotton harvesting machines, then the amount of the bonus for them per ton of cotton will be: for a cotton weediness of up to 5 percent -- 3 rubles and 75 kopecks, from 5.1 to 12 percent -- 2 rubles and 50 kopecks. The use of these norms in all areas would be of considerable assistance in regulating the organization of this particular type of incentive on the farms and it would promote improvements in the quality of the final products.

The results of studies carried out over a period of many years by scientific institutes testifies to the fact that machine harvesting operations are characterized by a tendency towards lower quality in the raw cotton. In addition to sharp differences in its quality for individual oblasts of the republic, caused by agroclimatic factors, there is also a clear difference in the lowered explosive force of the fibre in raw cotton that is machine harvested compared to that which is harvested by hand. For the republic as a whole and over a period of many years, the proportion of grade 1 raw cotton obtained by means of machine harvesting is less by a factor of 2-4 than the proportion of grade 1 raw cotton obtained manually. This is the result of a peculiarity in the harvesting technology for raw cotton intended for machine harvesting. The cotton harvesting machine still does not ensure a consistent and selective harvesting of the raw cotton as the bolls open on the bushes, as is the case with manual harvesting. The mixing of raw cotton from bolls obtained from various areas and having different fibre qualities inevitably leads to a reduction in the average strength of the raw cotton fibre and hence to a reduction in its quality.

The 14 November 1980 Decree of the CPSU Central Committee and the USSR Council of Ministers entitled "On Improving Planning and the Economic Stimulation of Production and the Procurements of Agricultural Products," aimed at intensifying the material interest of workers in increasing the production of high quality raw cotton, authorized the sovkhozes (and recommended that the kolkhozes) utilize utilize up to 10 percent of the value of the raw cotton sold as 1st or 2d grade quality for awarding bonuses to those workers engaged directly in the raising and procurement of raw cotton of the 1st and 2d industrial grades and also to those leading workers and specialists who promote the obtaining of high quality products. In order to raise the level of mechanized harvesting of the crop, the size of the bonus should ideally be differentiated (in % of the value of the raw cotton of the 1st and 2d industrial grades): for machine harvesting of from 40 to 60 percent of the cultivated crop -- up to 4 percent, from 61 to 80 percent -- up to 5-7 percent and higher than 80 percent -- up to 8-10 percent. Not less than 60 percent of the mentioned bonus should ideally be used for awarding to those machine operators engaged in the machine harvesting of cotton and who supply the state with high quality raw cotton. These measures are aimed at achieving complete mechanization for cotton production, as called for in the decisions handed down during the 26th CPSU Congress.

The bonuses for supplying the state with high quality raw cotton should ideally be issued only to those cotton producing brigades and teams which produce no less than 60 percent grade I and II raw cotton of all such cotton procured during the current year, with the proportion of grade I cotton being not less than 20 percent. If less than 40 percent of the crop is harvested by machines, then despite observance of the other conditions called for, no bonuses will be paid out for improved quality in the raw cotton. The practical realization of the measures proposed will promote improvements in the harvesting of raw cotton and in the quality of the products.

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AGRO-ECONOMICS AND ORGANIZATION

UNIFICATION OF APK SYSTEM FOR FOOD PROGRAM IMPLEMENTATION

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[Article by Kh. Repp, candidate of economic sciences (Moscow Oblast): "Improvement of Administration of the Agro-Industrial Complex -- An Important Element in the Implementation of the USSR Food Program"]

[Text] In the broad and multifaceted program for social development and improved well-being of the people, the CPSU and the Soviet government assign a primary role to reliably providing the population with high-quality food products. In order to carry out this task, the USSR Food Program was developed for the period up to 1990. It is a most important constituent part of the party's economic strategy for the forthcoming decade. The program was approved by the May (1982) Plenum of the CPSU Central Committee, at which Comrade L. I. Brezhnev spoke. The plenum approved a number of other important documents regarding certain key issues related to implementing the Food Program. In particular, they earmarked large measures for improving administration of agriculture and other branches of the agro-industrial complex as a unified whole.

In order to improve the administration of the APK [Agro-industrial complex], a decision was made to create a unified system of agencies for administration of all of its branches, both central and local. Agro-industrial associations are being created in the rayons, krays, oblasts and autonomous republics, and agro-industrial commissions are being created in the union republics and the country's center. Special importance is attached to the rayon level.For the creation and efficient functioning of the RAPO [rayon agro-industrial association], it is very important to generalize the work experience of similar associations which have been in operation for a number of years in the Latvian, Estonian, Georgian and other union republics. The activity of these agro-industrial associations raises a number of complex unsolved problems.

Among the problems that require further theoretical substantiation in order to adopt the corresponding practical measures is the determination of the legal status of agro-industrial associations and agricultural administrations of the ispolkoms of rural rayon soviets of people's deputies. Here it is important, in our opinion, to proceed first of all from the fact that agro-industrial associations are economic organizations which exercise control over the activity of the totality of enterprises and organizations that are included in it. And it seems to us that the supervisory and control functions of the activity of the agro-industrial complex could expediently be the responsibility of the rayon agricultural administrations of the ispolkoms of the rayon soviets, once the corresponding subdivisions have been organized here. These subdivisions, according to our ideas, could go to a certain degree beyond the framework of the fulfillment of functions which are strictly related to agriculture and exercise control over the course of state procurements of agricultural products, the development of private subsidiary farms of the citizens, the building up of land areas, the operation of the service for plant protection and the veterinary service, the rayon seed inspection, and so forth.

As the 6 years of experience in Estonia and the 5 years of experience in Latvia have shown, the functioning of the RAPO's here still did not make it possible to solve fully the problem of balanced development of the agro-industrial food complex at the rayon level. This task, like the task of the formation and administration of the agro-industrial complex at the republic level, and the insurance of high effectiveness of this administration must be resolved in the shortest possible period of time, at the very beginning of the implementation of the Food Program that was adopted by the May (1982) Plenum of the CPSU Central Committee. Raised here, in particular, are such complex tasks as solving the problem of the administrative-economic structure, the rights and responsibilities of the complex as a whole as well as its individual units, and the system of economic levers that make it possible to maneuver resources efficiently among the branches. In the final analysis, the central problem is that of increasing the efficiency of the functioning of the agro-industrial complex as a whole and of all of its constituent parts.

The USSR Food Program for the period up to 1990 embodies the comprehensive special purpose approach to solving the food problem. "A most important feature of this approach consists in that, in order to coordinate and combine the work both of agriculture itself and of the branches of industry, transportation and trade that serve it, all their activity must be directed toward a common final goal -- the production of high-quality food products and their sale to the consumer," [1] emphasized Comrade L. I. Brezhnev when speaking at the May (1982) Plenum of the CPSU Central Committee.

Within the framework of this approach we must eliminate the presently existing cases of lack of correspondence or lack of coordination of the interests of the participants in the unified agro-industrial complex. It is known, in particular, that in a number of cases there are violations of the principle of equivalence in the exchange among units of the APK -- kolkhozes, sovkhozes and organizations that serve them (Goskomsel'khoztekhnika, Soyuzsel'khoztekhnika, Mezhkolkhozstroy and others). Thus some of the resources of the kolkhozes and sovkhozes are unjustifiably taken over by service and processing branches of the APK. This, in the final analysis, impedes the development of the entire APK and leads to a weakening of the position of the kolkhozes, sovkhozes and interfarm associations as the main production units in the system for providing the population with food products. As a result, there are irreplaceable economic losses: the rates of increase of the production of agricultural products slow down, the economic indicators of the production activity of the kolkhozes and sovkhozes become worse, and they lose personnel. The May (1982) Plenum of the CPSU Central Committee earmarked principal measures for eliminating the aforementioned shortcomings and a number of others.

There can hardly be any reason to doubt that the system of administration must be adequate to the given kind of production. Since the kolkhozes and sovkhozes are the main units of the APK, the ministries of agriculture and the oblast (kray) and rayon agricultural administrations should become the central units in the system of administration of the complex; moreover, agriculture--the main branch that produces food products--and also the spheres of the APK that serve agriculture and process its products should be regarded as a unified production, economic and social mechanism. This means, in particular, that profit and profitability cannot be the final national economic goal of each individual ministry or department that is represented in the administration of the APK. It would seem that for further strengthening the roles of the ministries of agriculture in the system of the APK, it would be useful to assign them the functions of a coordination agency in their relations with ministries of fruit and vegetable growing, procurements, the meat and dairy industry, Goskomsel'khoztekhnika, and the Ministry of Land Reclamation and Water Management, as well as with subdivisions of branches of automotive transportation and the food industry which are directly engaged in the procurement, transportation and processing of agricultural products.

In order to further increase the effectiveness of the activity of ministries of agriculture and to increase the material motivation of their workers, it is necessary, from our point of view, for the branch and a number of other functional administrations and divisions of the ministries of agriculture of the union republics without oblast division and the ASSR's, and also the oblast (kray) agricultural administrations to operate as republic (oblast, kray) autonomously financed production agro-industrial associations in keeping with the overall provisions concerning the all-union and republic associations in agriculture. At the same time, a number of administrations and divisions of the ministry of agriculture or the oblast (kray) agricultural administrations can fulfill functions with general competence (control over the utilization of land and labor resources, agricultural equipment, and so forth) and not be a part of the given autonomously financed republic (oblast) production association of the APK. Funds from the state budget could serve as a source for financing these units of administration as part of the staff of the ministry or the oblast (kray) agricultural administration.

The decree of the CPSU Central Committee and the USSR Council of Ministers on the USSR Food Program for the period up to 1990 earmarks "simplifying the organizational structure of the administration of the agro-industrial complex, eliminating surplus and duplicated units, considerably reducing the number of administrative personnel, and increasing the responsibility of each unit of the agro-industrial complex for increasing production volumes and improving the quality of foodstuffs and raw material for industry as well as for organizing reliable and continuous supply of all kinds of foods for the population."[2] Calculations show that improvement of the organizational structure for the administration of agricultural production in the rayon, republic, oblast or kray does not require any additional capital investments or increased numbers of administrative staff. Moreover, bringing order into administration will make it possible to eliminate excess staff that have appeared because of the recent formation of numerous trusts and associations and will also save considerable amounts of money.

Of course the system of administration of the food complex cannot be the same for the entire country. The selection of forms of administration requires an attentive study of the many factors that characterize one region or another (the natural and economic conditions of agricultural production; the provision of the APK with material and labor resources; the areas and level of specialization and concentration of production; the specific social problems in the development of the rural areas; experience that has been accumulated; and it is also necessary to take into account all the opinions of scientists and practitioners). In other words, it is necessary to have a purposive, creative search for the most effective forms of administration under the specific given conditions.

The decree of the May (1982) Plenum of the CPSU Central Committee envisions the creation of rayon and oblast (kray) agro-industrial associations. On the basis of this, one of the directions for improving the administration of the APK is to define more precisely the role of the presently existing interfarm organizations and councils (except for the council of kolkhozes) and also to include in the future rayon and oblast associations, interkolkhoze construction associations and interfarm associations for fattening hogs and raising cows; it would also be expedient to include other interfarm formations in these associations. As a result, economic management and administration of agricultural production will be simpler, and the savings on expenditures of working time of administrative workers of the rayon level can comprise a considerable amount.

The working agencies of the councils of the RAPO and the OAPO (oblast agro-industrial association) act as the corresponding administrative subdivisions. Consequently, in the legislative acts and provisions concerning the RAPO and OAPO it is important to determine not only their structural divisions, the functions of the associations as a whole and those of individual officials; it is also of essential importance to establish the optimal number of administrative workers of the rayon and oblast associations. In this connection, it seems to us that the RAPO staff should include 35-40 people, that is, about half as much as the number of officials that are now employed in such associations (RAPO) as an experiement. This approach, however, can reduce the volume of information that is obtained. Nonetheless it is justified. One need only be concerned about improved organization of administrative labor (for which, incidentally, it is quite important to retain the increased salaries for the RAPO's that are being created as well) and to carefully select from the mass of possible information that which is actually necessary, being guided here by the instructions of the May (1982) Plenum of the CPSU Central Committee. In his report at the Plenum Comrade L. I. Brezhnev pointed out that it is necessary to forbid anybody to request information from the kolkhozes and sovkhozes except that which is established by state accountability.[3] Comrade L. I. Brezhnev emphasized: "It is necessary to adhere strictly to this rule at all levels and to make no exceptions to it."[4]

It is written in the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving the Administration of Agriculture and Other Branches of the Agro-Industrial Complex" which was approved by the May (1982) Plenum of the CPSU Central Committee: "In the union republic one creates a Commission of the Presidium of the Council of Ministers of the union republic or, at the discretion of the Council of Ministers of the union republic, another agency for questions of the agro-industrial complex. The Commission (agency) includes ministers and leaders of departments that are part of the agro-industrial complex, and also other officials that are approved by the republic Council of Ministers.

"The Chairman of the Commission (agency) for questions of the agro-industrial complex is the Deputy-Chairman of the Council of Ministers of the Union Republic."[5] This provision is extremely important, particularly because the special purpose comprehensive Food Program will become an effective instrument of management only if there is a unified system for controlling its implementation.

Within the framework of a unified state agency for administration of the APK and foodstuffs, one can also make the necessary changes in the organizational structure of administration and change over from the branch principle of administration to the interbranch and territorial-branch principles of administration of the productive subcomplexes of the TK. The administrative agency for the subprogram for the development of the fruit and vegetable subcomplex can be, for example, the Ministry of the Fruit and Vegetable Industry, and the subprogram for the development of the grape and wine making subcomplex--Goskomvinprom (in the RFSFR, the Azerbaijan SSR and others).

In addition to the aforementioned subprograms, there is also a subprogram for providing the population with protein products, including subprograms for the development of the meat-dairy and fishing subcomplexes; a subprogram for the development of the subcomplex for producing and processing vegetable oils and animal fats; a subprogram for providing the population with carbohydrate products, including a subprogram for the development of the bread-baking subcomplex, the sugar beet subcomplex, and the potato product subcomplex. The APK must must have the corresponding subdivisions for managing these subprograms. This pertains directly to the APK's of the oblasts and krays (ASSR's) as well.

In order to further improve the planning and administration of the branches of the PK as a unified whole, it would be expedient to establish a policy whereby the republic Council of Ministers determines in a separate section the following planning indicators for the entire republic food complex: the volume of procurements of agricultural products, fish products and products of other branches of the PK, production plans for enterprises of the ministries and departments of the processing industry and the sphere of services; the overall wage fund for state enterprises; the sum of payments into the budget; the sum of allocations from the budget; the overall volume (limit) of capital investments that provide the material and technical resources necessary for all spheres of the APK and PK of the republics; and the volumes of deliveries of technical equipment, mineral fertilizers, mixed feeds, construction materials, and other resources of industrial production for the republic PK, including private subsidiary farms.

The creation of the RAPO contributes to developing processes of industrialization of agricultural production and to surmounting the essential differences between the city and the country. If one does not include trade and public catering in these associations it becomes more difficult to have a comprehensive solution to the economic and social problems of rural areas, particulary problems of satisfying the demand of the rural population for public catering services. This work is now carried out mainly through consumers' cooperation. But its forces are inadequate to fully satisfy the demand of the rural population for this kind of service, which is shown by the growth of the network of dining rooms that belong to kolkhozes and sovkhozes. The dispersion of material and financial resources impedes industrialization of public catering, without which it is extremely difficult for this branch to develop further. Under the existing conditions it seems expedient to pool the material and financial resources of the agro-industrial associations and consumers' cooperation. This will make it possible to solve the problem of developing public catering in rural areas, taking advantage of the motivation of such economically strong organizations as Soyuzsel'khoztekhnika, Soyuzsel'khozkhimiya, Mezhkolkhozstroy and also the kolkhozes, sovkhozes and other enterprises that are included in the RAPO.

An optimal variant of centralization and concentration of production in public catering would be the creation of rural profile combines which would include dining rooms and delicatessens, specialized shops for producing meat, and also for producing vegetables and other products, specialized transportation, a laboratory for chemical and bacterialogical control and shops for repairing technical equipment. But the creation of such combines will require the solution to many scientific-technical and organizational problems.

When speaking about the effectiveness of public catering, one should also keep in mind the social aspect of the problem. The social effectivness of public catering consists not only in freeing women from preparing food and increasing the amount of free time of rural residents, but also in forming the best prerequisites for the organization of their leisure. The latter is extremely important for the rural population since it contributes to the creation of living conditions which approach the urban level and even surpass it.

One of the conditions for a successful solution to the food problem is efficient utilization of food products which, in turn, depends essentially on the technology of the production of products for eating in public or at home and on the degree to which this process is mastered and controlled. We have considerable unutilized reserves here. It is known, for example, that thermal processing of food products frequently leads to a destruction of a certain amount of proteins, fats, carbohydrates and vitamins. In the final analysis, no small part of the valuable products are lost because of our inability to regulate correctly the temperature and time of warming, and also because of the use of unprogressive methods and devices for preparing food. The Moscow Institute of the National Economy imeni G. V. Plekhanov and the Institute of Nutrition of the USSR Academy of Medical Sciences have developed new devices and conditions for preparing dishes and culinary items that provide for maximum retention of their nutritive and biological value. But the recommendations of scientists are hardly enough to actually introduce efficient technology. The corresponding organizational and administrative decisions are also necessary.

Administration of the food complex as a whole (the special-purpose comprehensive program and its subprograms) presupposes the need for scientific development of the system of evaluations of the quality of nutrition for the population and practical recommendations regarding balanced nutrition. This problem is related, in turn, to the production structure in agriculture and the food industry in the country, domestic and foreign trade, public catering and public health. We need comprehensive research and development of the corresponding recommendations and normatives as well as their introduction, which should be carried out under the control of agencies for administration of the food complex.

Recently there has been a tendency toward being carried away with critical remarks regarding a certain lack of correspondence between the supply and demand for meat and dairy products. At the same time we do not sufficiently take into account the fact that the food ration does not have enough fish and fish products, fruits, berries and vegetables. In a number of regions of the country a good deal of fatty pork is consumed, while the diet doesnot contain enough (as compared to an efficient structure of nutrition) fish, vegetables and fruit, and in many cases the rural residents to not have the opportunity to sell the state the crops they have raised, for example, apples. Of course, this situation should be attended to by agencies for administering the Food Program.

Of great importance for successful implemntation of the Food Program is improvement of the planning and financing of the entire totality of branches and units of the complex. "For the first time," noted Comrade L. I. Brezhnev when speaking at the May (1982) Plenum of the CPSU Central Committee, "the agro-industrial complex is being singled out as an independent object of planning and administration. This will make it possible to combine territorial, branch and special-purpose program planning better and more eficiently. The latter is based on . . . the final result --continuous supply of food for the country. It is precisely this result and this goal that the entire unified system of administration of agriculture and branches related to it is direct--both centrally and locally."[6]

In this connection it seems justified to establish a policy for planning and financing the branches of the food, milling and groat, mixed feed, meat and dairy industries which is constructed along the same hierarchical lines: USSR Council of Ministers--Council of Ministers of the union republic (namely, the commission or council of the APK)--republic ministry. Now, as we know, there is a different system: USSR Council of Ministers--union ministry--republic ministry. But still the overall technical and technological management of the branches should be provided by the corresponding branch union ministries. When drawing up plans it would be expedient to use a methodology which, according to previously determined, scientifically substantiated normatives, establishes a clear-cut quantitative dependency between the resources (capital investments, technical equipment, mineral fertilizers, mixed feeds from state resources and so forth) alloted to the republic (oblast, kray, rayon) and the assignment for state procurements of agricultural products or deliveries of products into the union fund.

The development of a system for the administration of the agro-industrial food complex creates new possibilities for further improvement of material incentives and social development as a result of redistribution of part of the profit of the kolkhozes, sovkhozes, enterprises and organizations of the PK, by providing for proportional development of production and comprehensive and balanced distribution of resources throughout all of the interconnected units. Here special attention is being devoted to the development of the infrastructure, particularly of enterprises that process agricultural products.

Of essential significance for rayon associations, and also for the republic (oblast, kray) agro-industrial food complex is, in our opinion, the development of a system of centralized accounts with the state budget, which makes it possible to increase the role of profit in the economic relations within the associations and regions, so as to change over to self-financing in the future. Money in the funds of the rayon association of the APK can be centralized, for example, through the utilization of this money only for acquiring such resources that are in short supply as concentrated feeds. Here it would be expedient to differentiate the price for one quintal of purchased concentrated feed, depending on the conditions of management, and providing it free of charge to farms that are operating under especially poor (loss-producing) agro-economic conditions. Such a policy would stimulate the production of one's own feeds and the application of larger volumes of organic fertilizer on multibranch farms, and would make it possible for the farms that are operating under the best conditions to reduce the purchases of concentrated feeds and mineral fertilizers. It would also make it possible to allot to the backward farms an additional quantity of purchased concentrated feeds, since such farms do not have enough of their own resources to increase these reserves.

Of no less importance is the formation of new interrelations among the branch partners on the basis of a common principle--increasing the responsibilities of each unit for the final results and strengthening planning discipline and contractual relations. The main economic levers of influence here are: substantiated procurement and sales prices, purposive distribution of incomes from the sale of products obtained on the basis of interfarm cooperation and agro-industrial integration; and a system of centralized financial resources where the funds of the RAPO and on the level of the republic (oblast).

In connection with the creation of the republic APK, among other problems there arises the serious problem of forming the utilization of funds, for example, the unified fund for the development of backward rayons. Here it is important to solve the problem of whether part of the profit of the ministries and departments of the republic APK should be deducted into this fund or whether it should be formed from funds of other branches of the national economy in the given region. It is also necessary to have a comprehensive evaluation of the agro-economic potential of the various farms, rayons, oblasts and republics as a whole, and also (for omparison) of a number of neighboring republics. For example, it would be expedient to do a comprehensive evaluation of the natural and economic conditions for management in all the republics and oblasts of a given zone and to create an overall inter-regional fund of assistance for them within the framework of the APK of the entire region.

In our opinion, within the framework of the food complex it would be useful to apply such an economic instrument as calculated prices that make it possible to take into account the economic interests of all production units of the complex in order to equalize the conditions for their functioning. Such calculated prices should be constructed on the basis of the principle of equivalent exchange not only in terms of current (production cost) but also in terms of calculated outlays.

Here it is extremely important for the overall level of procurement prices to provide for reimbursement of socially necessary expenditures on production in agriculture of a given region, compensating for a possible increase in the prices of means of production and services that are delivered to agriculture. Within the republic it is necessary to use the mechanism of rebates and increments to existing prices in order to optimize the ratio of procurement prices. Such a mechanism is already being used in the Georgian SSR, where rebates from procurement prices for highly profitable products (citrus fruits, tea and so forth) are deposited in a special account, from which they pay increments to the price of the sale of animal husbandry products to the state.

The extension of such elements of the economic mechanism of the APK to other republics would make it possible to solve several interconnected problems. In the first place, the republic APK would have a flexible economic lever for correct regulation of interbranch and territorial proportions in order to better utilize the existing agro-economic potential and to obtain a maximum final effect. In the second place, with a method of rebates and increments it would be possible each year, within the framework of unchanging state expenditures on the procurement of agricultural products, to influence the economic interests of the kolkhozes and sovkhozes, which would motivate them to specialize and concentrate production correctly and utilize natural, material and labor resources better. In the third place, a certain proportion of the financial resources that are centralized through the method of rebates from the procurement price could be used for compensating for the objectively worse natural and economic conditions in a number of regions of the republic. It is understandable that the proposed system would be improved during the course of its practical implementation and would be augmented with new elements, for example, fixed payments into centralized funds of agricultural enterprises and enterprises that serve agriculture on the basis of an evaluation of resources.

In order to fully promote the economic and social interests of the kolkhozes and sovkhozes, it is important to calculate rates for work (services) provided by service organizations (Goskomsel'khoztekhnika, Soyuzsel'khozkhimiya and so forth) in such a way that the profit of their enterprises covers no more than their own expenditures on the formation of material incentive funds, social and cultural measures and housing construction. Here we have in mind providing the service organizations with part of the incentive payments for the final results of the activity of the rayon or republic agro-industrial (food) complex from the corresponding centralized fund.

In order to increase the effectiveness of agricultural in the system of the APK, it is necessary to arrange more effective economic ties among organizations and enterprises, to strengthen autonomous financing relations, and to develop a system of interrelations of rayon associations of Goskomsel'khoztekhnika and the kolkhozes, sovkhozes, associations and service organizations. It would be expedient to clarify the existing provisions concerning their contractual relations and make changes in the existing policy for planning and economic stimulation of enterprises and organizations of Goskomsel'khoztekhnika.

It is also necessary to eliminate the discrepancies between value and physical indicators of commercial food resources. Sometimes, in order to fulfill the plan in terms of volume of products sold (in rubles), enterprises of the food and bread baking industry, and especially public catering, increase the production of costly products that are advantageous (high-calorie sweet dishes) without the corresponding increase in the output of products that are more necessary but less costly (dishes made of vegetables, fruits and potatoes). Here it is important to establish control on the part of agencies for administration of the food complex in order to make sure that national economic interests are promoted. The planning of the output of foodstuffs and their utilization in public catering should be made closely dependent on the demands of the consumer.

The successful solution to the food problem is conditioned by the need to increase the amount of attention paid to the private subsidiary farms of citizens and subsidiary agricultural sections (shops) of industrial, construction and other enterprises (organizations) as well, keeping in mind that labor in subsidiary farming not only provides for an additional quantity of products, but also contributes to more correct utilization of free time. The search for and development of new, more effective forms of interconnection between public and individual production acquire qualitatively new possibilities within the framework of the APK. It is necessary to solve more energetically the problem of mechanization and electrification of labor processes in private subsidiary farming. In places where the kolkhozes and sovkhozes take on the responsibility for the performance (with the help of modern technical equipment) of the more labor-intensive work, where dairy plants or combines precisely meet the schedule for receiving milk locally, and where the necessary economic, administrative and psychological methods of administration are applied, the effectiveness of private subsidiary farms is greater. The development of the latter is ". . . a large issue which deserves attention in the Food Program as well."[7]

The concluding part of the USSR Food Program up to 1990 points out: "The country has everything necessary for fundamentally solving the food problem. To this end it is extremely important to utilize skillfully the immense possibilities that lie in the socialst planned economy . . ."[8] These possibilities are very largely connected to further improvement of administration of the agro-industrial food complex as well.

FOOTNOTES

1. "The USSR Food Program for the Period up to 1990 and Measures for its Implementation," "Materialy mayskogo Plenuma TsK KPSS 1982" /Materials of the May (1982) Plenum of the CPSU Central Committee/, Moscow, 1982, p 9.

2. Ibid., pp 61-62.

3. Ibid., p 18.

4. Ibid.

5. Ibid., p 79.

6. Ibid., p 17.

7. Ibid., p 15.

8. Ibid., p 74.

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AGRO-ECONOMICS AND ORGANIZATION

FOOD PROGRAM PLANS OF AZERBAIJAN SSR OUTLINED

Baku VYSHKA in Russian 14 Sep 82 p 2

/Article by A. Gadzhiyev, candidate of economic sciences and director of the Azerbaijan Scientific Research Institute of Economics and Agricultural Organization, Baku: "Concern for National Wealth"/

/Excerpt/ Despite the unfavorable weather conditions of recent years, tremendous advances have been achieved in agriculture in the Azerbaijan SSR. As a result of constant concern being displayed for Soviet Azerbaijan by the CPSU Central Committee, its Politburo and by Leonid Il'ich Brezhnev personally, stable logistical and economic prerequisites have been created for the accelerated development of all branches of agriculture, for converting them over to an industrial basis and for making extensive use of progressive forms for organizing agricultural production and labor. Just as for the country as a whole, a considerable increase took place in the republic's fixed productive capital of an agricultural nature. It increased by a factor of 2.36 per 100 hectares of agricultural land. The power-worker ratio increased by a factor of more than 1.3 and the amount of irrigated land was increased by 80,400 hectares. Mineral fertilizer deliveries increased by a factor of 2.43. The specialization and concentration of agricultural production based upon interfarm cooperation and agroindustrial integration was further intensified.

All of this made it possible to achieve high production economic results. Compared to the Ninth Five-Year Plan, the rate of growth in agricultural output during the Tenth Five-Year Plan exceeded the rate of growth in capital investments by a factor of 2.2. During the 10th Five-Year Plan, 2.5 additional rubles worth of gross output were obtained per ruble of increase in capital investments, including profits -- 0.9 rubles.

Improvements in the distribution of production and in specialization and concentration led to new qualitative changes in the structure of agricultural production throughout the republic.

Such branches as cotton production, vegetable raising, fruit production and especially viniculture developed at the fastest rates. The mentioned branches became decisive ones in the all-union division of agricultural labor. And today the AzSSR is surpassing other cotton production republics in terms of its rates of development for the production of raw cotton. During a comparable period the gross yields for vegetable crops increased by twofold, fruit and berries -- by 76.8 percent and grapes -- by a factor of 4.6. Such production growth was achieved mainly owing to an intensive factor -- raised cropping power, which for vegetable crops was increased by 59.2 percent, fruit and berry crops -- by 46.9 percent and grapes -- by a factor of 2.1. A considerable increase was also achieved in the production of vegetable and fruit canned goods and wine materials. Despite the fact that the area sown in grain crops was decreased by 78.9 percent over the past decade, the gross yields for the grain crops nevertheless increased by 57.5 percent owing to a twofold increase in cropping power.

Considerable successes were achieved in the development of livestock production and its feed base and based upon the results of the 1980-1981 livestock wintering campaign the republic was declared the winner of the all-union socialist competition. The conversion of livestock production over to an industrial basis is being carried out in a systematic manner. Over the past 10 years, 93 livestock complexes and interfarm associations have been built and placed in operation. Improvements have been carried out in the pedigree structure of the livestock and poultry and also in the organization of breeding operations. During this same period, up to 95,000 head of pedigree cattle were imported.

All of these matters were discussed during a Plenum of the Central Committee of the Communist Party of Azerbaijan, held in June 1982. The Plenum adopted a decree clearly reflecting the historic importance of the May (1982) Plenum of the CPSU Central Committee. In addition, the chief trends for work by the party organization of the republic in implementing the food program of the USSR were singled out.

The Plenum defined the course to be followed for purposeful, organizational and political-educational work by the Central Committee of the Communist Party of Azerbaijan in directing the development of the republic's agroindustrial complex in light of the decisions handed down by the May (1982) Plenum of the CPSU Central Committee.

The starting point for all of the work was a position expressed in a report by Comrade L.I. Brezhnev. This position held that if the food ration of a Soviet individual conforms to the physiological norms in terms of overall caloric content, then the food structure is in need of improvement. The demand for meat and dairy products is still not being satisfied, there is a shortage of vegetables and fruit and interruptions are taking place in the trading in other food products.

In evaluating the process of forming agroindustrial complexes, the May (1982) Plenum of the CPSU Central Committee singled out those reserves which can and must be used for increasing the production of food goods and agricultural raw materials. This will first of all ensure proportional and balanced interaction between the various spheres of the complex. With regard to the modern development of the agroindustrial complex, its elements function with varying degrees of intensity. Success has still not been realized insofar as achieving coordinated operations among all branches and production efforts of the agroindustrial complex. It is for this reason that a falling behind or interruption in one sector causes difficulties to arise in another. For example, our republic is troubled by crude violations in the sorting, packaging and shipping of products -- these are shortcomings which lead to great losses and to a reduction in quality. The Central Committee of the Communist Party of Azerbaijan and the AzSSR Council of Ministers have enjoined the appropriate ministries and departments to establish proper order in the carrying out of this work. And today this is borne out in particular by city dwellers -- the purchasers of vegetables, fruit and melon crops -- they are now receiving these products in better condition and quality.

This is only one of the points comprising the all-round approach being employed by us in Azerbaijan for solving the food problem. In light of the decisions handed down during the May (1982) Plenum of the CC CPSU, substantial measures were defined for improving the branch proportions in viniculture and in livestock production. Greater attention is now being given to developing and raising the efficiency of the subsidiary farms of enterprises and organizations and measures have been undertaken aimed at raising the incentives for the producers of food products.

During the 11th Five-Year Plan, more than 3.7 billion rubles, or more by a factor of 1.5 than the figure for the 10th Five-Year Plan, will be used for developing the branches of the agroindustrial complex. The following facilities will enter operations: 32 new and large-scale processing enterprises, 55 plants for primary wine-making, livestock complexes for 136,000 head, poultry factories for 20 million broilers, vegetable and fruit storehouses for 56,000 tons and refrigeration units for 20,000 tons.

But at the same time a considerable acceleration must take place in the work being carried out on prolonged and unfinished construction projects, of which there are still quite a few in the processing industry and in livestock production operations in the republic. The attitude towards such projects was clearly and specifically expressed during the May Plenum of the CPSU Central Committee: "A maximum amount of attention must be given to the timely placing in operation of those projects of the agroindustrial complex which make it possible, within a brief period of time, to provide a maximum increase in food products. They must be viewed as being very important construction projects." This represents still another important direction to be followed in connection with carrying out the tasks of the food program.

Moreover, in the report delivered before the May Plenum by Comrade L.I. Brezhnev, mention was made of the need for improving the economic mechanism and converting over to program-special purpose planning for the agroindustrial complex as a single whole. Such large-scale work is incompatible with certain administrative shortcomings. Departmental isolation, unjustified growth in the administrative apparatus, parallelism and duplication and administration to the detriment of economic methods of management are still continuing. Thus, in the decisions handed down during the May (1982) Plenum of the CPSU Central Committee, special attention was given to those problems concerned with improving the administration of the agroindustrial complex, mainly by raising the economic independence and initiative of the kolkhozes and sovkhozes, the consistent use of economic methods of administration, the proper combination of territorial and branch principles of control and by strengthening the rayon echelon.

In our republic, these principles are clearly expressed in new organizational forms of administration which appeared during the 9th Five-Year Plan and which have been undergoing further development since that time. This consists of concentrating all administration in 16 ministries and departments and creating rayon agroindustrial associations. However, there are shortcomings: Apsheronskiy Rayon serves as an example; here there are many leaders at each farm and their efforts are not being coordinated.

Our republic is confronted by great tasks. In addition to the further development of cotton production operations, the production of grapes (especially table varieties), early vegetables and potatoes will increase at rapid rates. The plans call for the average annual production of grapes during the 11th Five-Year Plan to be increased to 1.4 million tons and during the 12th -- to 2.2-2.5 million tons, grain -- to 1.1 and 1.2 million tons respectively, vegetables and melon crops -- 950,000-970,000 tons and 1.2-1.3 million tons. In the interest of meeting the livestock production requirements for various types of feed, the plans call for the production of such feed to be increased by a factor of 1.9-2. The average annual production of meat (in dressed weight) during the 11th Five-Year Plan will amount to 150,000 tons and during the 12th Five-Year Plan -- 180,000-185,000 tons and milk -- 850,000-860,000 and 950,000-970,000 tons respectively.

In order to carry out the tasks called for in the food program, it will be necessary to complete the construction of the Vilyashchayskiy and Vaykhirskiy reservoirs and also the Shamkhor machine canal and the irrigation of lands based upon these facilities. In addition, a number of group water lines must be placed in operation. Over the course of a decade, 160,000 hectares or irrigated land will be placed in operation and 285,000 hectares of pasture land watered.

There can be no doubt but that the kolkhozes, sovkhozes, interfarm and agroindustrial formations and all of the republic's workers, relying upon the foundation built during the years of the 9th and 10th five-year plans and upon the republic's increasing economic and scientific-technical potential, will fulfill all of the tasks called for in the food program of the USSR and achieve all of the high goals outlined by the party.

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AGRO-ECONOMICS AND ORGANIZATION

EXPERIENCE OF ESTONIAN RAPO IN MANAGEMENT RESPONSIBILITY

Tallinn KOMMUNIST ESTONII in Russian No 7, Jul 82 pp 28-31

/Article by Yu. Rakhula, chairman of the Vil'yandiskiy Rayon Agro-Industrial Association: "Large Tasks, Large Responsibility"/

/Text/ It is known that the growth of production of agricultural products in our country regularly outstrips the growth of the population, which has increased by 35 million since 1965. But the consumption of food products is also constantly increasing so that the level of production we have achieved still does not satisfy us.

In his speech, "On the Food Program of the USSR For the Period up to 1990 and Measures for its Implementation," at the May (1982) Plenum of the CPSU Central Committee, Comrade L. I. Brezhnev noted that implementation of the Food Program attaches special importance to the rayon level: "Here we are forming a really fully authorized and democratic administrative agency that is capable of exerting complete influence on production, taking into account the interests of the kolkhozes and sovkhozes." The speech also emphasized the need to encourage the activity of kolkhoze workers and to step up control over the observance of democratic principles of production administration.

Recalling now the period of preparation for the creation of the Vil'yandiskiy Rayon Agro-Industrial Association, I can say that the long exchanges of opinions among managers of farms, production specialists and scientists that were held then were useful. We tried to think everything out carefully and avoid hasty decisions that were economically and organizationally unjustified. And now one can say that the responsible task which lay on the shoulders of the Party organization of the rayon and republic for developing a system of administration of the association is basically fulfilled. There was general interest in the possibilities that lay in the agro-industrial association. After the creation of the Vil'yandiskiy Rayon Agricultural (later renamed Agro-Industrial) Association we had many guests from all the union republics.

During the time of the creation of the rayon agricultural association (1975) both in the republic as a whole and in our rayon there was still a rapid advancement of agricultural production which was brought about by the implementation of the decisions of the March (1965) Plenum of the CPSU Central Committee.

and its productivity and many other indicators. Only one requirement is now made on the plans--that the production volumes envisioned in them must provide for fulfillment of the state assignments for the procurement of agricultural products and satisfaction of intrafarm needs.

This means, on the one hand, independence in planning production, but, on the other, also the responsibility to carefully analyze its condition in order to intelligently take advantage of the freedom that has been granted and to remember that successful fulfillment of the tasks facing animal husbandry requires that crop growing be developed in the most energetic way.

It has now become possible to reduce the areas planted in grain crops, but we are refraining from all extremes. It is generally known that concentrated feeds are needed for the development of animal husbandry and, even though the rayon receives large amounts of them from the union fund, it is still of primary importance to strengthen our own feed base. Our grain crops have always been feed crops with the most stable productivity. And this year we shall plant exactly as much land as we are sure we will be able to harvest. True, we have still risked a certain amount by planting land from which the harvest is not guaranteed.

When speaking about the development of animal husbandry, especially about raising long horned cattle, we refer to the shortage of grass feeds. But two or three years ago we could not count on any appreciable improvement in the situation here. We have now reduced the areas planted in grain crops and potatoes only by as much as we will be able to compensate for by increasing the production of grass feeds. We are guided by the consideration that on the existing land it is necessary to procure a maximum quantity of feed, including as much grain and potatoes as possible.

In recent years we have planted potatoes on more than 5,000 hectares. This year this area will be reduced by 270 hectares. For it is necessary to think about potatoes both for food and for feed for livestock. This year we will have to sell the state 27,000 tons of potatoes and the rest will go for feed and animal husbandry.

Thus independence in planning should be handled with a good deal of thought in order not to end up in a situation where, with a plan that is not too difficult we are able to handle the planted areas easily, but in the autumn when calculating the amount of feeds that have been procured we discover that we have worked to our own detriment and there could have been more feeds. From those grain fields (from 1,000 to 3,000 hectares) which were not harvested or from which we received green mass at best, we will, of course, have an advantage because now we will plant grasses on them and we can mow and gather them in any weather.

The number of head of livestock should be balanced with the feed base. This is an elementary truth--if thére are not enough feeds there is no justification for keeping more livestock. A certain amount is used for subsistance feed, which the livestock absolutely must have. And the products are obtained from that volume of feed which exceeds the "subsistance minimum." A clear example of this can be the hog farm of the support-demonstration Sovkhoz-Tekhnikum imeni Yu. Gagarin, which has an absolutely firm system in operation:

Table. Production of Main Agricultural Products in Vil'yandiskiy Rayon (tons, annual average)

	1961-1965	1976-1980	Increase, %
Grain	39,400	110,600	281
Meat (in live weight)	7,600	21,800	287
Milk	49,900	95,500	204
Eggs (millions)	5.9	11.1	188

One can be sure that the decisions of the May (1982) Plenum of the CPSU Central Committee will exert no less of an influence on our country's economy than the decisions of the March (1965) Plenum did. And this can only be gratifying.

The Vil'yandiskiy agro-industrial association has been functioning for almost seven years already, and during these years it has been necessary to change its structure repeatedly. One must say that the association is arranged on democratic principles, taking into account the interests of its participants in the overall results of the operation. It is clear that such an association cannot be administered by old methods. Whenever possible one uses democratic levers and economic regulation is applied instead of the usual administrative methods. All this, naturally, does not preclude demandingness and adherance to principles in implementing the Party agrarian policy and selecting and placing personnel.

At the May Plenum of the CPSU Central Committee, Comrade L. I. Brezhnev pointed out that "As always . . . our main burden lies on the shoulders of the Party raykoms. They have accumulated a great deal of experience in organizational and ideological-educational work among the masses. It is now necessary to raise this to an even higher level. Taking into account the complexity and diversity of the tasks being carried out in the rayons, it has been decided to implement a number of measures for strengthening the rural Party raykoms, particularly, to create agricultural divisions in the raykoms."

The main organizational role in the creation of the Vil'yandiskiy Rayon Agricultural Association was also played by the Party raykom, which had to expend a great deal of effort in order to surmount departmental barriers that impeded the action of the economic mechanism in the rayon. But after the introduction of the new system it was no longer necessary for the raykom to coordinate the activity of many enterprises and farms; it could concentrate attention on solving large long-range problems. A large amount of time remained for conducting political work directly in the production collectives. It was possible to mobilize the efforts of all participants in production for solving economic and social problems and to increase the role of the rayon unit in administration not only of agriculture, but of the entire agro-industrial complex.

Of course, the enterprises that serve agriculture and process its products are related to the association primarily morally and by the fact that their managers are part of the associatcin council which decides on the most important questions of the economic and social development of all agriculture in the rayon. Thus better mutual understanding was achieved among various units of the association.

As was pointed out at the May Plenum of the CPSU Central Committee serious changes are now being made in the relations among kolkhozes and sovkhozes and the organizations that serve them--Sel'khoztekhnika and construction, land reclamation and procurement organizations. The evaluation of the results of the work of these organizations and bonuses for their managers and specialists will be based, in addition to the performance of services, on the results of agricultural production and the output of products. If these results decrease, the managers and specialists of the organizations that serve the kolkhozes and sovkhozes are deprived of their bonuses.

It was initially impossible at the rayon level to solve many problems of balance and intercoordination of the development of the agro-industrial complex or to form an optimal ratio between territorial and branch administration. In many cases the reasons lie in the fact that up to then no republic agro-industrial complex had been formed, either organizationally or economically. Its units were not joined together by common final interests and goals, and the republic agencies did not have the rights and economic levers for inter-branch maneuvering in order to bring up the backward units and increase the effectiveness of the capital investments alloted for the implementation of the Food Program. In keeping with the decisions of the May Plenum of the CPSU Central Committee, agro-industrial commissions will be created in the republics. At the same time more responsiblity will be given to Party and Soviet agencies of the union republic--responsibility at the same time for their contribution to the unionwide food fund and the food situation in their own regions.

The agro-industrial commissions are being given extensive rights. They have the responsibility for improving the supply of food products to the population and coordinating the work of all ministries and departments that are included in the agro-industrial complex.

At the May Plenum of the CPSU Central Committee it was emphasized that in agriculture it is necessary to have quickness of management functions, independence in adopting decisions and enterprisingness. "Confidence in the managers, a demanding and motivated approach to their activity, encouragement of initiative and also increased personal responsibility for matters entrusted to them--such is the essence of the Party policy regarding this issue," said Comrade L. I. Brezhnev.

One recalls that during the days of the creation of the Vil'yandiskiy Rayon Agricultural Association we had the opportunity to make decisions independently and also, of course, to answer for the results of our labor. The areas planted in grain corps and potatoes in Vil'yandiskiy Rayon have increased from year to year, but in the autumn several thousands of hectares were not harvested. One of the reasons was that for the past five years in a row the climatic conditions were extremely unfavorable. According to the plans that were applied up until recently, grain was to be planted even on peaty soil, although the farm manager knew in advance that in the autumn it would be possible to harvest these fields only under the most favorable weather conditions.

Beginning this spring the farms were given the right to determine independently in their production and financial plans the volume of products, the planted areas and their structures, the productivity, the number of head of livestock five feed units should produce a kilogram of pork. And they do. Consequently, the number of head of hogs corresponds strictly to the quantity of feeds alloted on the farm. And, one must say, the results are good. The same system should be used on all farms of the rayon in order to provide for fulfillment of state assignments.

In his speech at the May Plenum of the CPSU Central Committee, Comrade .. I. Brezhnev also noted that "It is understandable that people desire to have more livestock. But in animal husbandry the main thing under modern conditions is to increase the milk yield per cow and the average weight gain of livestock that are released. This places major importance on improving the qualitative make-up of the number of head, improving breeding work and propagating highly productive breeds of animals. And, of course, a considerable increase in the production of feeds, improvement of their quality and efficient utilization of them."

A fairly large amount of what our rayon association earmarked for the past Five-Year Plan remained unrealized. We do not have enough production facilities, apartments, or kindergartens, and this is reflected in production. Under the past Five-Year Plan and in the first years of this one construction workers did not manage and are not managing to meet our needs. Under the 11th Five-Year Plan we failed to assimilate 10 million rubles that were alloted primarily for the construction of interfarm facilities, housing, consumer enterprises and children's institutions.

Along with the Vil'yandiskiy agro-industrial association economic zones were created--interfarm communities adjacent to historically formed rural centers, and they make it possible to carry out specialization and concentration of production in the association more easily and to accelerate the development of areas that are difficult to control from the center. For example, the base farm of the Huyya zone is the Karksi kolkhoz. In addition to it the zone includes the Kyrgemyae sovkhoz, the Polli experimental base, the Ysu sovkhoz and the Huyya Sel'khoztekhnika association. The first interfarm fattening base in our republic has been in operation for two years on the Karksi kolkhoz. As a result of specialization we are obtaining much larger daily weight gains and yet the advanage is mutual: both the base enterprise and the farms that supply it with livestock for fattening are interested in it.

Huyya is a typical rural village of the kind we would like to see as centers of all the economic zones. The village has a pleasant House of Trade, a dining room, a secondary school and a medical point. With support from the farms of the zone they have constructed a gymnasium of normal sizes and a swimming pool with four lanes. A building for a rural out-patient department is being constructed, for which the neighboring farms contributed funds on a shared basis, and they are also constructing the Huyy Sel'khoztekhnika association and a Ministry of Public Health. All this is extremely necessary since it is known that the social and demographic situation in rural areas is reaching the critical point because of the reduced reproduction of the labor force (the average annual reduction of rural population in Vil'yandiskiy Rayon exceeds one percent). The situation would probably be more alarming if the rayon agro-industrial association had not been dealing with questions of social development from the very beginning.

It is precisely improvement of the interactions among various units of the agro-industrial complex that one should expect as a result of the implementation of the decisions of the May Plenum of the CPSU Central Committee. After all, the agro-industrial complex was singled out for the first time as an independent object of planning and administration, and this means that each unit of it must work with complete effort and responsibility.

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AGRO-ECONOMICS AND ORGANIZATION

STRENGTHENING SUBSIDIARY ENTERPRISES IN UKRAINE CALLED FOR

Kiev PRAVDA UKRAINY in Russian 24 Aug 82 p 1

/Article: "The Agrarian Shop of the Enterprise"/

/Text/ Many urgent problems regarding production are solved each day by the board of directers, the Party committee and the trade union committee of the Severodonetsk Azot--the flagship of Urkrainian chemistry. Actively participating in the development of the agrochemical service in rural areas, the collective is striving not only to considerably increase the output of nitrogen fertilizers and to improve the quality of the granules of fertility, but it is also taking energetic measures to reduce losses during transportation and storage of fertilizers. In spite of all this they never forget about the needs of the enterprise's subsidiary farm. It is included among the main subdivisions of the combine to which literally everyone pays attention.

The agrarian shop here is solid. This is, above all, a large hog fattening complex where after the recent reconstruction it is possible to fatten 5,000 hogs a year. Construction has been started on two facilities to accomodate 80 shows each. Severodonetsk chemists are planning to increase pork production 1.5-fold before the end of the current Five-Year Plan. The enterprise has a developed hothouse business where this year they have raised for the worker's dining rooms more than twenty tons of cucumbers, more than a ton of tomotoes, and a large amount of onions, radishes and other useful produce. A million rubles have been alloted for expanding the hothouse facilities.

Thus many collectives of industrial enterprises are responding in an efficient, concrete and businesslike way to the responsible task set by the May Plenum of the CPSU Central Committee--to take measures for considerably increasing the production of foodstuffs on subsidiary farms.

"Every industrial enterprise and every organization," noted Comrade L. I. Brezhnev in his report at the Plenum, "is capable of maintaining such farms and, as a rule, they should have them. Industrial enterprises and organizations should allot the necessary areas of agricultural land for these purposes."

Thousands of enterprises and organizations in our republic have such subsidiary farms. They receive constant concern from managers and the Party committees also devote the proper amount of attention to them. And therefore the additional contribution to the country's food supply is appreciable--last year alone rural shops of plants produced thousands of tons of milk, meat, potatoes and vegetables, millions of eggs and a great deal of fish. "We thank the workers for the tasty meals," writes the leader of the sitters brigade of the Sumy Khimprov production association, A. Andrushchenko to the editorial staff. "And all this is because our enterprise has decided to consider the public catering service and the subsidiary farm shop No. 1. The director of the association, A. I. Kravchenko frequently begins his day with a tour of the hothouses, the fattening facilities, the dining rooms and snack bars."

The experience of the chemical workers of Severodonetsk and Sumy, the collective of the Donetsk Metallurgical Plant imeni V. I. Lenin, the Poltava ore enriching combine, the Kurakhovskaya GRES and others convince us that industrial enterprises are capable of doing a great deal to develop and strengthen their agrarian shops. A good example here is provided by the workers of the Sumy machine building association imeni M. V. Frunze. Having supported the initiative of the Krasnoyarsk workers, they resolved to equip twenty acres of hothouses and to construct a farm for 2,000 hogs and facilities for 1,000 head of calfs through their own efforts during the course of the Five-Year Plan.

But there are also examples of another kind. Not everywhere have the enterprises approached the creation and development of subsidiary farms in a way that is appropriate for the state, with the proper responsibility. There are frequent cases in which managers of industrial enterprises are slow in organizing agrarian shops and do not display much interest or initiative in this. This work is being done especially poorly in the Ministry of Road Construction, the Ministry of Housing and Municiple Services and the Ministry of Rural Construction in the republic. In this connection Party, Soviet and economic agencies must immediately take practical measures for constructing hothouses and animal husbandry facilities. There should be no indifference here. The master of machine milking of the kolkhoz imenie Karl Marks and Nikopol'skiy Rayon in Dnepropetrovsk Oblast, Antonna Fedotovna Fedusenko was quite correct in what she wrote to the editorial staff: "It is our program and we must carry it out," that there is no position or occupation, no person in the country who is not affected by the Food Program. If only one person is unconscientious the entire cause suffers and it will be more difficult to reach the programmed figures for public abundance.

Agricultural agencies can and should do a great deal for strengthening subsidiary farms. One must remember that the development of patronage assistance is now not only along the line from the city to the country, but also, and no less important, the reverse: from the country to the city. We are not speaking only of selling breeding animals and seed material, it is no less important to share experience and knowledge and promptly prevent mistakes. And there is no doubt that rural specialists and leading workers of kolkhoz and sovkhoz production are extending their hand to their comrades on the subsidiary farms and helping them to assimilate all the fine points of agricultural technology as rapidly as possible.

The creation of a stable feed base is a crucial issue. As we know, in keeping with the decree of the Party and government, private subsidiary farms should be supplied with feeds not from state resources, but from local reserves and the creation of their own feed base. To this end it is necessary to organize the gathering of food wastes, to arrange the procurement of seeds on the alloted land, and to utilize all land that is otherwise unsuitable. In a word, subsidiary farming should be done the way it is done at the health resorts of Mirgorod, the forestry enterprises of Zhitomir Oblast, and the Kolomya timber processing plant. There are now many sources of experience in the republic.

Some managers claim that it is impossible to develop the agrarian shop since local soviets of worker's deputies cannot solve the problem of alloting land for subsidiary farms. And such a problem does exist in a number of rayons of the republic. But people with initiative find a solution. A clear example of this is the activity of the Dneprovskiy machine building plant imeni V. I. Lenin. The collective of the enterprise has found a successfull form of cooperation with the Krasnopol'skiy sovlkhoz in Dnepropetrovsk Oblast. They have essentially joined the efforts of the two collectives and created a unique plant-sov khoz complex. The point of the innovation is to bring the economically weak farms up to the level of the leading enterprises and to solve the Food Program jointly.

Subsidiary farms are a relaible source of supplying the population with food products. And it is the duty of Party, Soviet, trade union and economic agencies to exercise unwavering control over the creation and development of agrarian shops of enterprises.

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TILLING AND CROPPING TECHNOLOGY

USE OF CHEMICALIZATION IN NORTH CAUCASUS AGRICULTURE

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 7, Jul 82 pp 67-70

/Article by Eduard Karpovich Eysert, candidate of economic sciences, senior scientific associate, head of a division of the Krasnodar affiliate of the Central Institute of Agrochemical Services to Agriculture: "Effectiveness of Chemicalization in Farming in North Caucasus"/

/Text/ At present a successful realization of the food program is impossible without the maximum possible intensification of agricultural production and, primarily, chemicalization. Basic Directions for the Economic and Social Development of the USSR for 1981-1985 and for the Period Until 1990 approved by the 26th CPSU Congress call for the application of no less than 115 million tons of mineral fertilizers (in standard units) in 1985, which is 40 percent more than the 1980 level.

North Caucasus is one of the major regions in the production of grain, factory sugar beets, vegetables, oil sunflower seeds, fruits, berries, grapes, milk, meat and eggs.

Deliveries of mineral fertilizers to farms in North Caucasus have been greatly increased in the last few years. They rose from 579,300 tons of nutrient substances to 1,100,800 tons in 1980. The growth of production of mineral fertilizers and of their utilization on kolkhozes and sovkhozes leads to an increase in capital investments and in the expenditures of labor and funds both in industry and in agriculture. According to our data, in the structure of production costs of agricultural output of some kolkhozes and sovkhozes in North Caucasus, where the level of application of chemicalization agents is quite high, the expenditures on fertilizers now reach 20 percent and more. In connection with this it is necessary to find ways leading to a reduction in the expenditures of labor and funds on the production of fertilizers and on the performance of operations connected with their use.

The organization of a specialized agrochemical service is one of the main factors in a reduction in the expenditures of labor and funds on chemicalization in farming.

Experience in the establishment and operation of this service was accumulated in North Caucasus. For example, the organization of intrafarm chemicalization centers enabled farms in Ust-Labinskiy Rayon, Krasnodar Kray, to lower the expenditures on the application of 1 ton of fertilizers from 15.1 to 10.5 rubles. The specialized service for the use of chemicalization agents on the Nasha Rodina Kolkhoz in Gulkevichskiy Rayon, Krasnodar Kray, allowed for the concentration of all equipment and the introduction of the brigade form of work, which made it possible to increase shift output per standard tractor by 0.7 standard hectares and to lower the production costs of operations by 23.9 percent.

Cooperation in agrochemical services in Chertkovskiy Rayon, Rostov Oblast, contributed to a fourfold increase in the application of organic fertilizers and to a 59.9 percent rise in labor productivity. The chemicalization centers established in Zernogradskiy and Salskiy Rayons, Rostov Oblast, operate efficiently.

A comparison of the indicators of the two periods (before and after the organization of chemicalization centers) indicates that the increase in the return of fertilizers accounts for about 80 percent of the total effect and the saving resulting from the reduction of losses of mineral fertilizers, up to 5 percent. The organization of specialized intrafarm chemicalization centers requires additional capital investments ranging from 200,000 to 350,000 rubles. These expenditures are recovered within 1.5 to 2 years.

When intra- and interfarm chemicalization centers are established, it is necessary to first perform a number of calculations for the substantiation of the optimum service zone, selection of an efficient system of machines and technological operations, determination of the necessary capacity of warehouses, placement of runways and so forth. The diversity of economic and natural conditions in North Caucasus and the differences in the periods, methods and doses of fertilizer application determine the accomplishment of the task set separately for every rayon.

Chemicalization centers should have the following: an administrative building, a warehouse for mineral fertilizers and toxic chemicals, whose capacity depends on the volume of chemicalization agents applied in the center's zone of activity, a runway, an aircraft parking area, dissolving units, a loading area, capacities for the storage of liquid compound fertilizers, a maintenance shop, hangars for the parking of motor vehicles, tractors and agricultural machines and other auxiliary installations. A chemicalization center is equipped with all the necessary machinery for the transportation, preparation and application of chemicalization agents. Every center services one or several farms depending on the size of agricultural land and local natural-economic conditions. The number of specialists and machine operators in a center is determined by the volume of work on the chemicalization of the serviced zone.

The following data are used for an economically substantiated placement of chemicalization centers and the determination of the capacity of warehouses of mineral fertilizers and toxic chemicals: the area of land use (total, of agricultural land and of arable land) on every farm and in the entire rayon; the structure of sown areas and prospective rates of application of organic and mineral fertilizers, ameliorants and toxic chemicals per hectare; the total volume of application of solid and liquid mineral fertilizers, organic fertilizers, ameliorants and toxic chemicals; the volume of application of chemicalization agents during the most intensive period and its duration; the volume of application of mineral fertilizers and toxic chemicals by the ground method and aviation; the location of existing standard warehouses and runways; map diagrams of land use in a rayon.

The calculations presented by us have shown that in Krasnodar Kray it is necessary to establish 48 chemicalization centers adjoining the railroad line and 179 out-of-the-way chemicalization centers with a total capacity of warehouses for the storage of 1,599.8 million tons of mineral fertilizers, 64,470 tons of toxic chemicals and 133,000 tons of liquid compound fertilizers. The organization of chemicalization centers in Krasnodar Kray will make it possible to lower fertilizer losses to 6 percent and to reduce the expenditures during the application of mineral fertilizers by 2.0 to 3.4 rubles per ton and of organic fertilizers, by 0.1 rubles per ton and during the treatment of crops with toxic chemicals, by 0.2 rubles per hectare. An efficient and prompt application of fertilizers makes it possible to increase the yield of agricultural crops by an average of 20 percent.

An efficient utilization of chemicalization agents is based on a large number of interconnected factors, which can be taken into consideration only during the introduction of an automated control system into the agrochemical service. The Krasnodar affiliate of the Central Institute of Agrochemical Services to Agriculture is engaged in problems connected with the development and introduction of this control system as applied to the soil and climatic conditions of the zone in North Caucasus.

The following are the basic tasks in the development and introduction of this system into production:

Organization of the accumulation of information on the agrochemical state of soil, on the amount of applied fertilizers and other chemical agents by years and on the results of field and production experiments with fertilizers, of data on the chemical analysis of the nutritive value of plants and so forth;

processing of accumulated scientific information for the determination of the dependence among soil, fertilizers, yield and the quality of agricultural crops with due regard for other production factors;

optimum planning of the needs of agriculture for chemicalization agents and the distribution of allocated funds right up to intrafarm subdivisions;

development of and provision of agricultural enterprises and departments with scientifically substantiated recommendations for the utilization of chemicalization agents;

rise in the labor productivity of managerial and planning apparatus on the basis of the introduction of economic and mathematical methods and computers;

control over the activity of planning and surveying stations of chemicalization of agriculture and agrochemical laboratories.

The Krasnodar affiliate of the Central Institute of Agrochemical Services to Agriculture formulated the problem and developed a program complex for the determination of the need of agricultural objects for nutrient substances on the basis of the planned yield level and for the distribution of the allocated stocks of mineral fertilizers with due regard for the applied amount of nutrient substances with organic fertilizers and the priority of crops and objects.

When the need of an object for nutrient substances is determined, the following are taken into consideration: economic removal of nitrogen, phosphorus and potassium by the basic output of every crop with due regard for the corresponding quantity of byproducts; level of provision of soil with nutrient elements available for plants; intake of nutrients with atmospheric precipitation, seeds and organic fertilizers; accumulation of nitrogen through the nonsymbiotic fixation and biological effect of nodule bacteria of pulse crops; losses of nutrient substances through leaching, soil erosion, removal by weedy vegetation, technological losses of mineral fertilizers during their delivery from the plant to the field and gaseous losses of nitrogen.

The calculated dose of nutrient substances for every crop in terms of nitrogen, phosphorus and potassium is corrected, utilizing the data of field experiments in the study of the efficiency of application of mineral fertilizers. When stocks of mineral fertilizers are distributed, along with the above-mentioned indicators the priority of individual objects and crops and the intake of nutrient substances with applied organic fertilizers are taken into consideration.

The program complex envisages the following levels of calculation: economic region, kray, oblast, autonomous republic, administrative rayon, trust, association and farm.

On the average, the program complex lowers labor expenditures by 63.5 man-hours and funds by 36.7 rubles per object of distribution.

The affiliate of the Central Institute of Agrochemical Services to Agriculture developed and introduced into production the RADOZ-SK program complex--determination of the need for and formulation of the plan for the application of organic and mineral fertilizers on a farm for the calendar year. This program complex envisages the following:

determination of the need of a farm for organic and mineral fertilizers during a specific calendar year on the basis of the type and subtype of soil, its provision with nutrient substances, degree of erodibility, quality of the predecessor, level of the planned harvest, quality of output, set of agricultural crops and scientifically substantiated doses, periods and methods of fertilizer application for every field or plot, crop rotation and department on a farm for the crops of the harvest of the current year and the fall application of fertilizers for the harvest of the following year;

preparation of an optimal plan for the application of fertilizers on a farm for the calendar year on the basis of the allocated stocks of mineral fertilizers and the availability of organic fertilizers with due regard for the above-mentioned indicators, significance of the cultivated crops and provision of the greatest efficiency during their utilization.

On the basis of the performed calculations a farm receives recommendations and a plan for the application of fertilizers for the calendar year separately for the crops of the harvest of the current and next year, the filled in table No 9 of the production and financial plan "accumulation and application of fertilizers" and information on the economic efficiency of fertilizer application. For convenient use recommendations and plans for every department or brigade are formulated on separate sheets.

The introduction of the RADOZ-SK program complex makes it possible to greatly increase the productivity of managerial labor, through the maximum possible consideration of interconnected factors to more efficiently utilize fertilizers and on this basis to raise the production of agricultural products. For example, the development of the plan for fertilizer application on a manual basis requires no less than a week, but on a computer this work is performed in 30 to 40 minutes. An increase in the production of plant products in value terms through a more efficient utilization of fertilizers averages 18,400 rubles per farm in North Caucasus.

A reduction in the losses of mineral fertilizers at all the stages of their delivery from the plant to the field is another no less important a matter in an increase in the economic efficiency of fertilizers in farming. Our investigations have shown that 165,500 tons of mineral fertilizers worth 7.8 million rubles are annually lost throughout North Caucasus (see table).

Average Annual Losses of Mineral Fertilizers

Area	Volume of deliveries, thous. tons	Losses		
		Tons	In % of total volume of deliveries	Thousand rubles
Dagestan ASSR	133.1	9882	7.42	560.9
Kabardino-Balkar ASSR	92.3	7331	7.94	316.0
North Osetian ASSR	52.5	4195	7.99	167.1
Chechen-Ingush ASSR	94.1	7192	7.64	341.6
Krasnodar Kray	1073.1	83248	7.76	3817.7
Stavropol Kray	328.0	24988	7.62	1275.1
Rostov Oblast	368.3	28693	7.79	1343.9

For the purpose of reducing the losses of mineral fertilizers, it is necessary:

to transport fertilizers in specialized railroad cars or in railroad cars equipped with panels and with sealed slits of floors and side walls;

to unload railroad cars basically according to the railroad car-warehouse scheme, which ensures a careful unloading and gathering of spilled fertilizers;

to store fertilizers only in standard warehouses with the observance of all the rules of performance of technological operations;

to carry out loading and unloading operations in full accordance with the technologies incorporated in standard plans;

to deliver fertilizers to a farm by specialized motor transport or motor vehicles with serviceable bodies and their mandatory covering with canopies;

to prepare fertilizers in special fertilizer mixers and to transport them to the place of application, using serviceable transport facilities.

The fulfillment of these measures will reduce fertilizer losses by 3.49 percent, or by 74,700 tons, amounting to 3.5 million rubles.

Machines with centrifugal spreaders of the RUM-3, RMG-4 and KSA-3 type and others are now widely used for the application of mineral fertilizers. According to numerous data, machines with disk centrifugal spreaders do not ensure the necessary uniformity of fertilizer application, which leads to a decline in the efficiency of fertilizer use.

We have conducted investigations of the limits of permissible nonuniformity of application of mineral fertilizers under the conditions of North Caucasus. The nonuniformity of fertilizer application during the performance of investigations was attained through the overlapping of continuous passages of a unit. As a result of these investigations we have concluded that during the application of mineral fertilizers by machines with the RUM-3, I-RMG-4, KSA-3 and other centrifugal spreaders it is necessary to overlap each contiguous passage by no less than 3 meters, which will make it possible to additionally obtain an average of 5.6 quintals of grain per hectare worth from 37.8 to 57.1 rubles per fertilized hectare of sown winter wheat in the zone of North Caucasus.

Local fertilizer application is another advanced technological method. The local method of application of mineral fertilizers contributes to a better development of the root system, increases the supply of nutrient substances for plants, reduces the losses of nutrient substances, lowers the expenditures on their application and lessens the danger of environmental pollution.

The developed local volume method of application of liquid fertilizers simultaneously with the sowing of row crops (author's certificate No 725,601) has a number of advantages consisting in the following: elimination of the gap between the application of fertilizers and sowing; limitation of the contact of fertilizers with soil, which leads to a decrease in the amount of nutrient substances turning into a form not available for plants and thereby the coefficient of utilization of the nutrient substances of fertilizers rises; provision for the placement of fertilizers in the necessary soil zones, which creates optimum conditions for plant nutrition throughout the period of plant life; reduction of expenditures of labor and funds as a result of the combination of two operations--fertilizer application and sowing.

The experiments conducted by us have shown that the application of liquid compound fertilizers by the local volume method to corn for grain in the $N_{10}P_{34}$ dose has ensured an approximately the same increase in the harvest as the local application of ammonium nitrate and double granulated superphosphate in the $N_{20}P_{68}$ dose.

Much attention is now paid to problems concerning the periodic application of phosphorus and potassium fertilizers. On the basis of the investigations of the agrochemical service of North Caucasus we performed a calculation of the efficiency of the periodic application of phosphorus and potassium in the system of crop fertilization in crop rotation. Calculations show that under the conditions of North Caucasus, when fertilizers are applied as a reserve for a number of years, the operating expenditures on their application are reduced by 34.6 percent and labor expenditures, by 23.4 percent. Therefore, a periodic application of phosphorus and potassium is also advisable, especially from economic positions, on the farms where it is possible to change over to such a method of fertilizer application.

The output of liquid fertilizers is one of the important factors in a reduction in the expenditures of labor and funds on the production and application of fertilizers. The advisability of an expansion of the production and application of liquid fertilizers is determined by a number of their advantages as compared with solid fertilizers: production not requiring conditioning, granulation, drying or packaging; full mechanization of all operations connected with transportation, storage, preparation and application to soil; significant reduction of losses during the delivery of fertilizers at all stages from the plant to the field; high uniformity of their distribution over the soil surface; possibility of their combined application with herbicides, insecticides and trace elements; reduction of the expenditures of labor and funds during their production and application.

Specific experience in the application of a liquid nitrogen fertilizer--the melt and liquid compound fertilizer of the 10-34-0 brand, whose production was mastered at the Krasnodar Chemical Plant--was accumulated in North Caucasus. An analysis of the structure of expenditures on the application of solid and liquid fertilizers has shown that the application of liquid fertilizers reduces (per ton of fertilizers) capital investments by 8.3 rubles, or by 28.6 percent, operating expenditures, by 2.15 rubles, or by 24.7 percent and labor expenditures, to one-half.

The realization of the examined proposals will make it possible to greatly increase the efficiency of application of chemicalization agents in the farming of North Caucasus and on this basis to raise the production of agricultural products and to successfully realize the developed food program.

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TILLING AND CROPPING TECHNOLOGY

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INCREASING MINERAL FERTILIZER SUPPLY TO PRIVATE SECTOR

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/Article by Candidate of Technical Sciences A.M. Yudin, VNIIKhimproyekt: "A Reserve for the Cropping Power of Private and Orchard Plots"/

/Text/ The private plots of rural and municipal residents and cooperative horticultural associations of workers consist of more than 6 million hectares of arable land (of 230 million hectares). This land furnishes approximately 60 percent of the overall yield of potatoes, 30 percent of the vegetables and roughly 50 percent of the fruit and berries. Thus an increase in the cropping power on private and orchard tracts is viewed as not only an important social but also a great economic task, the solving of which requires appropriate attention within the framework for carrying out the food program.

For the purpose of satisfying the requirements of individual horticulturists, flower growers and gardeners, our domestic chemical industry is producing a considerable assortment of plant protection agents (35 types) and mineral fertilizers in small packages. These are preparations for use in combating plant pests and insects: Malathion insecticide (against aphids, spiders, caterpillars), a green oil concentrate (against aphids, thrips, grass snakes, leafhoppers), metaldehyde (against slugs and snails), trichlorometaphos-3 (against aphids, caterpillars, moths, spiders), entobacterine (against leaf-chewing insects) and others. For catching the butterflies of the eastern fruit moth, special traps involving the use of sexual enticements are being produced. Ground sulphur is being produced for protecting plants against diseases (powdery mildew, oidium of grapes), antichlorozine (against calcareous chlorosis), bordeaux mixture (against scab, powdery mildew, mildew, phytophthora, fruit rot), carboran (against powdery mildew on cranberries) and others. Propionate is being used for destroying annual weeds (wild oats, bristle grass, meadow grass, Japanese barnyard millet) and perennial weeds (quack grass, Johnson grass, Bermuda grass). The heteroauxin growth stimulator, which accelerates the formation and development of root systems during the transplanting of plants, and also humate -- a growth stimulator for decorative and vegetable crops continue to enjoy great popularity. Auxiliary means used in the tending of plants are being made available for sale: horticultural resin, putty and whitewash. The Zashchita emulsion and VS-511 water-emulsion paint have proven to be highly effective for protecting trees against sun scorch and damage from rodents.

Preparations contained in the Tsvetofos aerosol can have proven to be effective for protecting decorative and berry bushes, flower and vegetable crops and fruit trees against aphids, thrips, mites, whiteflies and other plant pests.

Industry is producing more than 20 types of mineral fertilizers in 2-5 kilogram packages, including: single fertilizers -- potassium sulphate, potassium chloride, carbamide, precipitate, sodium nitrate, ammonium sulphate, simple and double superphosphate, ammonia and sodium sulphate; double fertilizers -- ammophos, sulphate of potash-magnesia; complex -- nitroammophos, nitroammophoska, nitrophoska, fertilizer mixtures (nine types), complex fertilizers with microelements. Microfertilizer in tablet form (for applying top dressings to vegetable, fruit and berry and decorative crops) continues to be in high demand.

The liquid agent VITO is effective as a top dressing for room, balcony and decorative flower crops grown in soil mixtures, in firm soil substitutes and also when use is made of the hydroponic method. This list could be continued.

Is this meant to imply that all reserves for assisting the private sector of our agricultural operations have been exhausted? There is a very simple answer for this question: no, by no means have they been exhausted.

As is well known, one of the most effective methods for further raising the fertility of soil is through the use of mineral fertilizers. Last year the country's chemical industry supplied agriculture with more than 19 million tons of nitrogen, phosphorus and potassium fertilizers (here and subsequently the fertilizer amounts are shown in a 100 percent conversion for nutrients). By means of abstracting from the specific figures for fertilizer applications on certain lands in various climatic zones, it is possible to compute that an average of approximately 85 kilograms of active agent is required for each hectare of arable land. At the same time, less than 100,000 tons of mineral fertilizer in small packages were made available for sale to the population in the retail trade. That is, once again an average of only approximately 17 kilograms of active agent is being made available per hectare of private plot. If it is accepted that the area of cultivated land for one private plot amounts to an average of five one-hundredths of a hectare, then the annual application of mineral fertilizer per individual plot equals 0.85 kilograms of active agent. This amount is clearly inadequate for replenishing those kilograms of nitrogen, phosphorus, potassium and microelements which are withdrawn from the soil with the harvesting of cultivated plants. The intensive management of private gardening and horticulture, the inability to employ clean fallow and the perennial cultivation of the same crop on the plots (particularly the sowing of potatoes following potatoes) inevitably exhausts the soil. This derives from the following fact: despite the placing in operation of the best high productivity varieties, the seed for which was acquired mainly for subsidiary farms and private plots through the Sortsemovoshch /Republic Office for the Production, Procurement and Sale of High-Quality Seeds of Vegetables, Melons and Fodder Root Crops/ and state nurseries, the yields obtained from private plots throughout the country as a whole during the past few years have stabilized. In the future, if the necessary measures are not undertaken, a reduction in these yields can be expected.

In order to obtain constant and high yields from the private plots of our country, the applications of mineral fertilizers must be increased from 17 to 100 kilograms per hectare. Moreover, the requirement for mineral fertilizer in small packages for individual plots amounts to approximately 600,000 tons.

There are also other important factors which, under the present state of affairs, are lowering the effectiveness of mineral fertilizer applications on the private plots. In particular, this includes the extensive dissemination on such plots of soils which violate the chemical mechanism -- acid, alkali and saline, which are characterized by an excess of certain ions and which adversely affect many crops.

Quite often the owners of private and suburban plots can only venture a guess in this regard and, as a result, are not undertaking the necessary measures. Truly, if mineral fertilizer applications on public farms are being carried out by agronomist-specialists who possess a good knowledge of which fertilizers, in what amounts, for which crops and during which periods the applications should be carried out, then it is difficult to ask all of the owners of private and suburban plots to be familiar with all of the intricacies of agronomy. The conclusion: agrotechnical ignorance is inhibiting the efficient use of mineral fertilizers.

A need exists for creating a broad network of oblast and even rayon centers for disseminating leading agrotechnical knowledge among amateur horticulturists. A great amount of assistance can be furnished in this regard by specialists attached to Sel'khozkhimiya associations, kolkhoz and sovkhoz agronomists, scientists attached to agricultural VUZ's and the aktivs of large collective orchards; the publication of popular literature should also prove useful.

It also bears mentioning that the problem of providing complete support for the owners of private and suburban plots in the form of mineral fertilizers and chemical plant protection agents may not be as easy to solve as it might appear at first glance. Thus the trading organizations presently assume that the retail network is completely supplied with fertilizers, that the demand by consumers will not increase and, it follows, there will be no need for increasing the orders of industry. Meanwhile, an increase in the capacities and further mechanization of the warehouse facilities of wholesale bases and trading points, an improvement in the seasonal nature of fertilizer deliveries, a reduction in the minimal shipping norm (at the present time it is 60 tons) and the development of shipments carried out in built-up freight cars will undoubtedly promote considerable growth in the sales volumes for mineral fertilizers in small packages for sale to the population. Beyond any doubt, all of these problems must be solved as rapidly as possible.

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MATERIALS, PROCESSING POORLY UTILIZED IN TIMBER INDUSTRY

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/Article by K. Mikhaylov: "Best of Intentions and Actual Work"/

/Text/ Allow me to commence by citing several figures. During the past five-year plan, the volume of marketable output by the timber, paper and pulp and woodworking industry increased by 8.1 percent and material expenditures -- by 11.7 percent.

What explains this excessive growth in materials intensiveness?

The reserves available for achieving economies in the use of timber materials are well known: complete use of the wood, an increase in the consumption of deciduous wood and in the use of waste products obtained from timber cuttings and woodworking production operations. The experience of the USSR Minlesbumprom /Ministry of the Lumber and Paper Industries/ reveals that when proper attention is given to this work great economic results are achieved, an intensification takes place in timber cuttings and processing work and more products are produced with fewer expenditures. Notwithstanding the fact that wood production fell by 12 percent during the five-year period, an increase took place in technological chips for the pulp and paper industry of 18 percent, chip board -- by 39 and wood fibreboard -- by 76.4 percent.

Special attention should have been given to developing the production of these effective and economic wood substitutes and such development should have taken place at greater rates. However the production volumes for these substitutes, as called for in the plan, were not fulfilled either during the 9th Five-Year Plan or last year. Very few light-weight, polished or covered boards are being produced and their proportions with regard to the overall volume of boards are 32, 19 and 6 percent respectively.

An important reserve for augmenting the raw material supplies for the production of cellulose and wood pulp is that of employing timber materials obtained from light deciduous strains of trees. Their consumption increases slowly and amounts to only 15 percent of the overall consumption of all strains of wood. By way of comparison: in Finland, in 1979, 25 percent of the wood used for cellulose and wood pulp came from light deciduous strains and in the U.S.A. -- 33 percent of the overall wood consumption was used for this purpose.

A reduction is taking place in the use of materials obtained from light deciduous strains for the production of lumber and wrapping and packaging materials.

One of the most "popular" reasons cited by USSR Minlesbumprom for under-fulfillment of the tasks for output production and for growth in the production costs for goods and in material expenditures is that of a shortage of raw materials. Let us assume that this is true. Why then was not proper control exercised over rational preparation of the lumber and over obtaining a maximum amount of lumber from the wood procured? Over the past 5 years the yield of round timber materials has decreased by 4 percent. Naturally, the production of waste materials has increased. Use can be made of a considerably quantity of these materials. However, such use is not being made. Four million cubic meters of wood waste materials are not being used in economic circulation.

Large quantities of waste scraps are being wasted in the timber industry and in wood-working processes; they are ending up in the refuse dump or they are being burned. Almost no use is being made of the waste products obtained from timber cuttings. The situation is very bad with regard to their use at the All-Union Production Association of Krasnoyarsklesprom, Sverdlesprom and Omskles. Here more than 60 percent of the waste materials are being lost. At the Ust'-Ilimsk timber industry complex, slightly more than one fifth of the waste products of the pulp and paper industry deemed suitable for use were put to use.

Meanwhile the leading collectives are providing us with object lessons in thrift. The associations of Karellesprom, Vologdalesprom and Gor'kles, for example, are making complete use of the waste products obtained from timber cuttings. Complete use is being made of the wood obtained at the Prikarpatles Association. Here the amount of products being obtained from each cubic meter of lumber is greater by a factor of two than the average for the branch. Moreover at the Kresttsy Timber Industry Farm of the Central Scientific-Research and Planning-Design Institute of Mechanization and Power Engineering for the Timber Industry, where the leading means and methods must be worked out, it is less by a factor of three than the average for the branch. This clearly reveals the manner in which the ministry addresses itself to the dissemination of leading experience.

It is completely obvious that the greatest results are obtained from the use of waste products as raw materials. However, because of them the technological requirements are being satisfied to only a weak degree. A considerable portion of the waste products is consumed as fuel. Moreover, that proportion of the waste products used as a source for supplementing the raw material base is decreasing annually. Whereas 5 years ago more than one half of the economically accessible waste products were used for technological purposes, last year -- 46.8 percent. The power engineering role played by the waste products was raised from 29.6 to 31.6 percent. This "balance" must be altered in favor of the raw materials complex. A considerable amount of experience in such work has been accumulated at leading enterprises of the branch. And no additional expenditures are required for making it available to all. But this is not being done. Even neighboring enterprises of USSR Minlesbumprom are working, as the saying goes, in various directions.

On Sakhalin, at the Poronaysk timber industry farm, almost 300,000 cubic meters of lumber were obtained through the use of the upper portions of tree length logs.

But this experience is not being disseminated sufficiently throughout the oblast. Mountains of waste products are rising at many timber industry farms. The waste products are being consigned to the refuse dumps at the Verkhne-Tymskiy, Onorskiy and Pervomaysk timber industry farms and thus slabs and laths are being lost.

The shortage in timber presupposes the use of other methods of management. The production of technological chips from the wood remaining in cutting areas can and must be organized at the timber industry farms and the waste products utilized. Such is the opinion being expressed by lower workers in the timber industry. However, this opinion has yet to receive the approval of the branch's staff.

The workers attached to industrial enterprises have consented to combine their efforts with allied workers from a timber farm. The Kineshma Zavety Il'icha Housing Construction Combine has recommended that the Ivanovo Oblast administration for the timber economy install tree-cutting equipment at its enterprises and organize the collection and processing of chips, sawdust and branches. The house builders are prepared to deliver the wood waste products obtained from all enterprises within a radius of up to 150 kilometers, using both water and motor transport facilities. In all probability, this can be done in areas other than just Ivanovo Oblast.

Certainly, the use of waste products involves considerably more difficulties than the use of the primary raw materials. They must be cleaned, prepared for production operations and processed. Does this not explain the desire on the part of workers attached to the USSR Minlesbumprom, to the extent that it is possible, to divorce themselves from such waste products and to obtain greater quantities of quality standardized lumber, leaving the waste products to be burned?

A most important indicator for the work of the branch -- the production of paper. But the plan for the production of paper is constantly not being fulfilled. And the most important reason for this -- a shortage of wood raw materials, cellulose. Mention has already been made of other factors which lead to such a situation. Yes, there is a shortage of raw materials. This attaches greater importance to ensuring the proper use of each cubic meter of wood and each kilogram of cellulose. A campaign is underway at the leading enterprises to achieve this. At the present time, everyone is familiar with the experience of the Solikamsk and Kotlas cellulose-paper combines. And indeed this experience lacked both approval and support for a long period of time.

It would appear that the ministry should have forced a study of this valuable experience and accelerated the tempo for introducing the innovation into operations. The purpose of the branch's staff is to carry out progressive changes, implement correct technical and economic policies throughout the branch and to make the experience of leading workers and collectives available to all.

Unfortunately however, the USSR Minlesbumprom is by no means doing this with the proper degree of persistence and at times it even impedes the dissemination of leading experience. Workers attached to the Central Scientific-Research Institute of Paper carried out all-round studies of light weight paper and gave it a high evaluation. They found no reason why it could not be used extensively in polygraphy. Nor did the leaders of the All-Union Soyuzbumaga Association uncover any contradictory evidence. It is expected that the opinion of such competent experts will serve to accelerate the introduction of this promising and economic method.

However, instead of work debates have commenced. And indeed the matter of taking into account the amount of paper produced in square meters is not a new one. As early as 1963, in an order handed down by the National Economic Council of the USSR, a twofold indicator was introduced into operations -- ton and square meter. Was this period of time really not long enough for the USSR Minlesbumprom to develop and approve an indicator which would stimulate the achievement of high national economic results with minimal expenditures?

The paper example testifies to the fact that at times the ministry's workers place their departmental interests above the national interests. This is borne out by the fact that waste paper and spoilage are never found at the branch's paper and cardboard enterprises. Similarly, many years ago rich wood raw materials and primary cellulose predominated in the production of paper.

The workers of the USSR Minlesbumprom maintain that the established task for processing waste paper during the 10th Five-Year Plan was fulfilled. Yes, this is true. But indeed the task was clearly underestimated. It is no secret that today a tremendous amount of this waste paper is not being used and quite often it is not even being procured owing to a shortage of processing capabilities.

What does the USSR Minlesbumprom intend to do? During the 11th Five-Year Plan, the plans call for the construction of new factories at the Balakhna Cellulose and Cardboard Combine, the Zhidachov Cellulose and Cardboard Plant, the Ingurskiy, Syaskiy and Arkhangelsk combines and at a number of other enterprises. Moreover, the paper makers intended to expand their capabilities for processing waste paper both during the past five-year plan and the one previous to it. But somehow these good intentions were not transformed into realities. Nor are they displaying any haste in traveling this route today.

The plans call for the processing of waste paper to be increased from 1.35 million tons in 1981 to 1.53 million tons in 1985. During the five-year plan the increase will amount to only 180,000 tons -- somewhat more than 10 percent. Is this really a state approach for solving an important national economic task? Over a period of 5 years the specialized branch plans to furnish less of an increase than will be achieved when just one of the factories erected withint the USSR Gossnab system reaches its planned capability.

Beyond any doubt the utilization of waste paper is economically profitable and yet it involves more problems than does use of the primary wood raw material, cellulose. And these additional problems are still being stimulated only weakly. This is why workers attached to the USSR Minlesbumprom do not wish to participate seriously in solving the waste paper problem. Yes and the entire problem is exaggerated. Its solution is being delayed by the use of a highly departmental approach.

An objection might be raised: where does one obtain the resources required for creating the processing production efforts? Everyone knows from whence they can be obtained, including the USSR Minlesbumprom: Moscow, USSR Stroybank /All-Union Bank for the Financing of Capital Investments/. USSR Gossnab erects the waste paper processing factories on the basis of credit extended to it.

It is by no means an accident that waste paper is referred to as the second raw material base of the paper industry. The use of each ton of such paper produces a savings of 3.5 cubic meters of wood, 1.6 giga-calories of heat and 226 kilowatthours of electric power. At the present time, roughly one fourth of the overall volume of paper and cardboard paper being produced is being recycled in the form of waste paper. And in the GDR -- 44 percent. This secondary raw material is used for producing wrapping and packaging materials, paper for forms, envelopes and tickets and most recently for printed types of papers. We produce poor quality cardboard for the most part and only a small proportion of it is used for coarse grades of paper.

Is it possible that such material cannot be used for technical, scientific or other purposes? By no means. For a period of 15 years now, UkrNPObumprom has been directing studies within the USSR Minlesbumprom on the use of waste paper and it is presently working on a process for improving such use. Processes have been created which are making it possible, using paper waste products from which printer's ink has been removed using the flotation method, to produce, writing, notebook and drawing paper and also various types of cardboard.

The experiments have shown that it is possible to obtain products which are not inferior, in terms of quality, to that being produced from primary fibre. But as yet not one enterprise of the USSR Minlesbumprom is equipped with industrial lines or even experimental production efforts that would allow serious work to be carried out aimed at developing a technology for improving the use of waste paper.

Such a technology has been developed at VIVR. It is used not only for removing printer's ink, bitumen and other impurities from the waste paper, but also for dividing it up into cellulose and wood pulp. An experimental-industrial unit has been in operation at VIVR for more than 5 years. But the technology has still not advanced beyond the walls of the institute's laboratory.

All of the above serves to underscore the fact that there are still considerable amounts of unused internal reserves available in the timber industry. The branch is employing obsolete methods, whereas the times dictate the use of other methods.

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